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TRENDS IN UNITED STATES MANUFACTURING INDUSTRY AND THEIR POSSIBLE IMPLICATIONS FOR LATIN AMERICAN INDUSTRIALIZATION*

UNIDO Working Paper on Structural Change

Prepared by
the Regional and Country Studies Branch
Division for Industrial Studies

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Preface

This paper was prepared within the framework of UNIDO's research programme on industrial redeployment and structural change.

In the current period of increasing uncertainties in the international industrial restructuring process and resulting changes in policies of the developed countries, it is important to analyse pertinent emerging policy trends and to assess the possible implication of these developments or policies on the scope and direction of industrialization in the developing countries. In this paper, an attempt is made to single out recent major changes in the structure of production and trade in the United States and the principal driving forces for an international division of labour between the United States and the developing countries. The paper reviews the implicit policies of the United States affecting its industry and future trade pattern - mainly with the Latin American countries.

This paper is intended to stimulate and contribute to discussions on industrial restructuring and to draw the attention of national policymakers to major currents in international industrial structures and the scope of their impact on national developments. The paper may thus serve as a first basis for more detailed analytical work towards conceiving industrial strategies and policies for the 1980s and 1990s.

This study was prepared by Dr. Peter B. Evans of Brown University, United States, as UNIDO consultant in co-operation with the staff of the Regional and Country Studies Branch of UNIDO.

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LIST OF ABBREVIATIONS AND ACRONYMS

CBI	Carribbean Basin Initiative
CEPAL	Comisión Económica para América Latina, United Nations
CIA	Central Intelligence Agency (United States)
DFI	direct foreign investment
ECLA	Economic Commission for Latin America, United Nations
EDA	Economic Development Administration (United States)
EEC	European Economic Community
GATT	General Agreement on Trade and Tariffs
GDP	gross domestic product
GNP	gross national product
IBRD	International Bank for Reconstruction and Development (World Bank)
ILO	International Labour Organisation
IMF	International Monetary Fund
ISIC	International Standard Industrial Classification of All Economic Activities
MITI	Ministry of Trade and Industry (Japan)
MVA	manufacturing value added
n.a.	not available
nes	not elsewhere specified
NIC	newly industrializing country
NSF	National Science Foundation (United States)
OECD	Organisation for Economic Co-operation and Development
OMA	orderly market agreement
OPIC	Overseas Private Investment Corporation (United States)
OTA	Office of Technology Assessment (United States Congress)
PEMEX	Petroleos Mexicanos
R and D	research and development
RAM	random access memory
SIC	Standard Industrial Classification (United States)
SITC	Standard International Trade Classification
TAA	Trade Adjustment Assistance
TNC	transnational corporation
TPM	trigger-price mechanism
UNCTAD	United Nations Conference on Trade and Development
USGPO	United States Government Printing Office
USITC	United States International Trade Commission
USWA	United Steelworkers of America
VRA	voluntary restraint agreement

EXECUTIVE SUMMARY

The principal aim of this report is to examine the recent changes in United States manufacturing and how such trends are likely to affect the prospects of Latin American countries endeavouring to industrialize in the face of the current condition of the global economy. The main vehicle for the analysis is a set of three case studies of specific industries: steel, electronics and petrochemicals. Steel is an industry which is clearly declining in the United States and facing difficult problems of over-capacity worldwide. Electronics is an example of an industry in which the United States is likely to place substantial hopes for the future. Petrochemicals is an intermediate case, one in which the comparative advantage of the United States is likely to erode, at least in important segments of the industry, but which is currently a strong competitor internationally.

Current United States industrial policy seems to have been shaped by the combination of three factors. First, the commitment to the predominance of market forces in economic activities has limited an active governmental role in industrial development and in directing structural adjustment. Secondly, the social and economic problems caused by the declining international competitiveness of basic United States industries have created growing pressures for protectionism. Thirdly, the interest of United States-based transnational corporations (TNCs) in the maintenance of an open international economy has created similar pressures against systematic protectionism. In combination, these factors have produced a policy which has allowed the growth of manufactured imports from Latin America while encouraging the growth of United States direct investment, but has also erected tariff and non-tariff barriers against Latin American manufacturers in a number of industries while failing to provide relief to United States communities and workers in declining industries.

Continuation of current United States policy to respond on an ad hoc basis to these conflicting pressures seems to be the most likely prospect for the future, but three other possibilities must also be considered. None of these is likely to emerge as an alternative in itself; nonetheless, each represents a direction in which current policy might be modified.

One possible alternative is active retardation of structural change. This possibility is attractive from the point of view of labour displaced from traditional industries by technological change and shifts in international competition. It may also be attractive to domestic capital in that it provides relief without implying extensive government involvement in the allocation or management of industrial capital. It is, nonetheless, unlikely to dominate United States industrial policies both because of the high welfare costs involved and because of its strong negative consequences for TNCs.

A second possibility is positive adjustment focused primarily on achieving increased competitiveness in international markets. This would involve relaxing current attempts to shield "sunset" industries while actively promoting and subsidizing the growth of "sunrise" industries. Increased governmental support for research and development of new technologies is a part of current policies to foster growth in new areas of comparative advantage. Active export promotion would be one of the hallmarks of such a policy and it therefore might be called "nationalist accelerated adjustment".

The final alternative might be called "internationalist accelerated adjustment". Like a nationalist variety of accelerated adjustment it would involve active governmental efforts to shift the sectoral profile of United States industry, but the major emphasis of such policy would not be on export promotion as such. Export promotion can lessen domestic balance-of-payments problems while increasing those of its trading partners. An "internationalist" industrial policy, on the other hand, would attempt to solve United States economic problems without disrupting the industrial growth of other nations. It would have to focus primarily on using domestic resources, especially labour, more effectively rather than concentrating on balance-of-payments problems. This would entail significant public support in the reallocation of domestic capital, both among industries and among activities within industries, and much more public attention to the functioning of domestic labour markets.

Policies in a number of domestic and external affairs would be crucial for increasing the capacity for structural adjustment in the framework of an internationalist accelerated adjustment strategy. Greater assistance would be

required in retraining or relocating workers and in easing the transition for communities to new productive activities so that the burden of shrinking industries not fall disproportionately on a few. Moreover, greater attention would have to be given to the effects of fiscal, monetary and technological innovation policies, as well as trade regimes, on the industrialization efforts of developing countries, as these effects are very significant given the level of interdependence in the global economy.

For example, United States monetary and budget financing policies have a large impact on the debt repayment efforts of Latin American countries. A one per cent rise in dollar interest rates is estimated to increase interest payments of the six largest Latin American countries by US$ 1533 million (187 million for Argentina, 521 million for Mexico, 577 million for Brazil) [Bank for International Settlements]. This single increment of increased debt servicing would be equivalent to a 4.0 per cent cutback in imports in Argentina, 5.2 per cent in Mexico, 3.6 per cent in Brazil, or an increased trade surplus of the same magnitude. This demonstrates the crucial linkages between developing countries' debt and their exports to and imports from the United States - most importantly of manufactured goods.

Policies influencing the development and transfer of technology are another key issue as changes in processsing techniques and new products in the United States can greatly affect the industrial co-operation between the United States and Latin American countries. In order to build viable and competitive industrial structures and utilize technical innovations in upgrading production, Latin America would need to monitor technology developments in the United States. This in turn presupposes transparency in United States policies for funding research and development efforts and overseeing trends in intra-firm and other technology transfers. United States policy may require additional incentives to encourage firms to centre growth strategies more on the benefits of exporting technologies to the growing markets in developing countries (such as extending life cycles of technologies and recouping research and development costs) than on merely controlling and restricting the dissemination of technologies. In connexion with the debt problem, resolving the economic and financial problems in Latin America would go a long way to increase the attractiveness of investment in and redeployment of production facilities to Latin America.

United States industrial policy affects all developing countries, but its effects are particularly great in Latin America. While East Asian Newly Industrializing Countries (NICs) have played a more cental role in the increased United States consumption of manufactures from developing countries, economic ties between the United States and Latin America are more intimate and complex, first of all because of the greater role of United States TNCs in Latin American manufacturing and, secondly, because of the greater inter-connection of the Latin American and United States labour markets (via immigration).

The way in which these policy tendencies are blended to form future United States industrial policy is obviously of crucial importance to Latin America. Continuation of current United States policies would probably not enhance Latin America's prospects for industrialization. A movement in the direction of active retardation of structural change would force a fundamental rethinking of current Latin American industrialization strategies. Such a rethinking could in turn have negative effects on the international position of United States manufacturing. It must be remembered that without its trade in manufactures with Latin America the United States would have had a negative balance of almost US$ 12 billion in 1979 instead of a positive balance of over US$ 5 billion.

Three industry case studies

Neither current nor possible future United States industrial policy should be examined in isolation from recent shifts in the international position of the United States manufacturing sector. While some industries face lagging productivity growth and declining international competitiveness other United States manufacturing sectors are growing rapidly and are of the forefront of new technologies. Thus, the changing position of the United States is best understood at the level of individual industries. Within the framework of this study it is not possible to examine the full range of industrial variation, but steel, petrochemicals and electronics are used as a sample.

Steel is one of the more extreme examples of declining United States competitiveness in basic manufacturing. United States steel companies never chose to compete in international markets, but they did enjoy a dominance of

the world's largest domestic market. Over the years since World War II, this was gradually undermined by the failure of United States corporations to adjust to technological change, changes in international raw materials prices relative to United States prices, and heavy investments in the industry by the Japanese, European and Newly Industrializing Countries. The United States steel industry was left not only unable to compete internationally, but vulnerable to international competition in its domestic market. By the end of the 1970s profits had disappeared, tens of thousands of steelworkers had lost their jobs, and imports were accounting for close to 15 per cent of domestic demand. The steel industry was in serious trouble and so were the communities in the Northeast and the Ohio River Valley that depended on the industry.

Even in this period of decline in the industry and associated high social costs government involvement in the industry's adjustment decision making was avoided and government policy focused on ad hoc protectionist strategies such as the "Trigger-Price Mechanism" (TPM)*. These were estimated to have cost consumers about a billion dollars a year while saving about 12,000 jobs. This policy, however, did not preserve jobs or profits in steel, but did have a negative impact on the competitiveness of United States metal fabricating industries. In the case of the automobile industry, for example, it has been estimated that United States firms pay 25 to 30 per cent more for steel than do their Japanese competitors.

There is no easy way out of the position in which United States steel firms find themselves. It is doubtful whether a general renovation of plant and equipment would be feasible even if the capital were now available (as it was in the 1950s). Current capital costs are probably too high for new greenfield facilities in the United States to be competitive with existing facilities in other countries. Even if more competitive capacity could be built, domestic demand would not support any additional capacity and exports are almost out of the question given worldwide problems of over-capacity.

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* The trigger-price mechanism, instituted in 1978, set minimum prices below which imported steel cannot be sold in the United States without initiating on investigation by the government.

The most rational strategy would seem to involve phasing out the uncompetitive plants of the Northeast and Ohio River Valley, and shrinking overall capacity by between 10 and 20 per cent while encouraging the construction of electric furnace mini-mills in areas where scrap is available and markets are more robust (e.g. the Southeast). The implementation of such a policy would involve on active state role in capital allocation and, even more importantly, would require the strong support of labour groups and communities to policies to reduce social costs.

Because of the orientation of United States policy in the industry, the growth of steel capacity in Latin America has been seen as a threat, despite the fact that Latin America imports about three times the amount of steel from the United States that it exports to the United States, and despite the fact that the growth of Latin American capacity has presented an important potential market for United States capital goods. Brazil in particular has suffered from the ad hoc protectionism of current United States policy. With large domestic reserves of very high quality iron ore, Brazil can legitimately claim to have a long-run comparative advantage in the production of steel. Between 1979 and 1981 it tried to exploit this comparative advantage and solve its own problems of falling domestic demand by increasing exports of carbon steel plate, stainless steel wire rod and stainless steel bar to the United States. Although Brazil never accounted for more than five per cent of United States domestic consumption, even in those products in which it was most successful, its exports came under legal challenge as being "subsidized" and therefore as potentially subject to countervailing duties.

Petrochemicals, unlike steel, has always had a strong international orientation. United States-based TNCs, both oil and chemical, have made major commitments to production facilities in the Third World and in Europe, and have provided the United States with an important source of export earnings. Between 1973 and 1980, United States petrochemical exports increased more than fourfold. Despite the apparent dynamism of the industry, however, continued United States competitiveness cannot be taken for granted. The rapid growth of exports was related primarily to the growth of worldwide demand rather than increased United States competitiveness. In fact, United States market shares were falling during this period. In plastics, for example, the United States

share of world export markets fell from 27 per cent in 1962 to 17 per cent in 1970, and to 12 per cent in 1977.

Petrochemicals is a highly differentiated industry. The competitive position of the United States has remained very strong in the technologically more sophisticated downstream products, but in basic petrochemical products United States competitive advantage has been undercut by two factors. Most important was the dramatic change in relative raw materials prices that followed on the oil price revolution. Energy-rich developing countries now have a substantial advantage over the United States in terms of raw materials and energy costs. In the case of Mexico, for example, feedstock costs may be a quarter of United States costs. The second change has been more gradual but is also important. The differential capital costs of constructing plants outside the United States is narrowing. To use Mexico as an example again, construction costs were estimated at 25 per cent above United States costs at the beginning of the 1980s but will be only 18 per cent higher by 1985.

Converging capital costs and substantially higher raw materials and energy costs leave the United States two choices with regard to basic petrochemicals. The profitability of existing naphtha crackers and other basic installed capacity could be shielded by raising the (already not insignificant) tariff barriers of those commodity petrochemicals that are easily transportable. The immediate negative effects of such a move from a Latin American point of view would be negligible. In the longer run however, Mexico (and potentially Venezuela) would be deprived of what could otherwise be a crucial market, a market that could facilitate the development of an important vertically integrated basic industry. The protectionist option would also, as in the case of steel, have negative effects on the international competitiveness of United States industries for which basic petrochemical products are important inputs (e.g. textiles).

The alternative possibility would be to assume gradual replacement of a proportion of existing basic capacity by imports, and to focus on product and process innovations in technologically more sophisticated downstream products, (e.g. fine chemicals, agricultural chemicals). Even though the more advanced Latin American countries are unlikely to accept a definition of the

international division of labour that would exclude them from the production of more sophisticated downstream products, increased United States openness with regard to basic commodity petrochemicals would significantly increase the options available not only to countries with a long-term comparative advantage in petrochemicals, like Mexico, but also to countries whose petrochemial development strategies focus on the domestic market, like Brazil.

The context shaping policy decisions in petrochemicals is much different than the policy environment surrounding steel. The companies involved are profitable, technologically aggressive, strongly interested in the preservation of a global environment open to trade and investment and without any overriding current interest in protection. The number of workers involved is relatively much smaller than in the steel industry and there is no pattern of community dependence on the industry comparable to the pattern that exists in steel. The policy environment is, therefore, generally much more flexible than is the case in steel.

At the same time, however, future possibilities in this industry are complicated by the fact that, unlike the steel case, United States corporations have significant global as well as domestic interests at stake. The policy issue is therefore not simply protectionism, but one of how the interests of United States TNCs would be affected by different patterns of importation. More specifically, United States TNCs may have a preference for sourcing imports from the Saudi Arabian capacity, which they are playing a central role in developing, rather than from the Mexican capacity or Brazilian capacity which has been developed by state and local capital with much more limited TNC participation.

In steel, the strategies of the firms involved were important mainly in the sense of generating problems which then had to be dealt with by future government policy. In petrochemicals, it seems likely that industrial policy will interact with firm strategies to determine the environment within which Latin American countries must operate. In electronics, firm strategies themselves seem likely to play the most important role in determining the options available to industrializing countries.

Electronics is already characterized by well-established strategies for the international differentiation of the productive process. United States TNCs have developed a variety of different strategies depending on the subsector of the industry in which they are involved. In consumer electronics, relocating production to lower wage bill areas has been the general trend. The United States is an importer rather than an exporter, and in some products (e.g. black and white televisions) domestic production has virtually ceased. In semi-conductors both United States imports and exports are large. Capital-intensive parts are fabricated domestically, labour-intensive assembly is done in developing countries and the assembled components are re-imported for insertion into final products, such as computers. The computer industry itself remains geographically centralized. United States imports are still relatively small, production by developing countries is almost non-existent, and United States exports amount to about 25 per cent of domestic production. The varying degree of international division of labour in these subsectors opens up certain opportunities for Latin American countries while at the same time places important limits on the possibilities for industrial development.

TNC strategies focused on the geographic dispersion of the production process in electronics have facilitated significant expansion of Latin American exports in the industry, as well as stimulated the growth of labour-absorbing manufacturing activities. These developments are most significant in the case of Mexico, which now supplies almost a third of all television parts and apparatus imported by the United States, and is an important supplier of electronic components in general.

One of the benefits enjoyed by these manufactured exports is that they are unlikely to confront protectionist barriers precisely because they are so intimately linked to transnational corporations' strategies. Over 95 per cent of Mexico's exports of electrical machinery are "related party imports"; that is, they are produced by subsidiaries of United States firms (or other kinds of "related parties"). In contrast to petrochemicals or steel, imports in this industry can count on domestic pressure to maintain open access to the United States market.

The close linkage between TNC strategies and Latin American industrial growth in this industry has, of course, disadvantages as well as advantages. Depending on their position within the division of labour as it is defined by TNCs, electronics assembly operations can be related only marginally to the overall industrial development of the Third World countries in which they operate. Exports of United States tariff items 806.3/807, covering duty-free re-entry of goods partially processed abroad by United States-based firms, almost by definition have few forward or backward linkages inside the country in which they are produced. Even in the case of a relatively industrialized economy like that of Mexico, electronics assembly operations are not a promising base for integrated industrial development (much less promising for example then petrochemicals), and in smaller, less developed countries (e.g., Central America and the Caribbean) the prospects for positive general effects on industrialization are even less certain. Any attempt to move in the direction of constructing a more vertically integrated industry internal to a country like Mexico would run counter to the most efficient geographic division of labour as defined from a corporate point of view - an often decisive factor given the extent of direct investment in the industry by TNCs.

Mexico and other Latin American countries that have become involved in electronics assembly are also affected by changes in TNC strategies based on changes in technology. Already, the foreign share of the value added contained in 806.3/807 electronics imports is declining as the circuits etched on the originally exported wafers become more complex and therefore more valuable. A potentially much more fundamental threat is contained in the possibility that changes in production technology might make automated assembly of semi-conductors in the United States economically preferable to the current international division of labour. Since promotion of such automated assembly technology is a plausible priority for a programme of "nationalist accelerated adjustment", this policy alternative may be less favourable to Latin America's interests in the electronics industry than a continuation of current policies.

Future possibilities

The industry case studies reveal a number of different ways in which Latin American countries might be affected by future United States policy. The simplest effects are illustrated by the steel industry, in which Latin

American attempts to develop manufactured exports have been limited by current United States policy. No Latin American country with hopes of building future industrialization around the expansion of manufactured exports can afford to ignore the lessons of the steel case: penetrating the United States market independently of channels provided by TNCs is a very problematic strategy even when imports compete favourably with the prices of domestic production. The lesson of Brazil's experience in steel is that success in penetrating United States markets may raise demands for protectionist policies. Steel also underlines the persistence of current policies: despite its strong market orientation, the United States Government has found itself unable to avoid a continuation of ad hoc protectionist measures in the steel industry.

The electronics case provides a very different kind of support for the proposition that current policies are likely to persist. By making it more difficult to penetrate the United States market independently of channels provided by TNCs, ad hoc protectionism makes arrangements like those developed in the electronics industry all the more valuable to those who would expand their manufactured exports. In this sense, TNCs may well find that ad hoc protectionism serves their interests better than a policy of unconditional liberal openness. At the same time, the electronics industry provides a good illustration of both the constraints and vulnerabilities that confront Latin American manufacturing when it tries to operate within the international division of labour as defined by TNCs and thus the potential disadvantages for Latin America implied by a policy of nationalist accelerated adjustment.

Petrochemicals suggests a similar sort of caveat with respect to the potential benefits of a policy of "internationalist accelerated adjustment". The discussion of basic petrochemicals showed that the removal of governmental barriers would still leave questions of access at least partially in the hands of TNCs - which might source the larger portion of their imported inputs from petrochemical industries in regions other than Latin America, where state and local capital along with non-United States TNCs play a predominant role. Thus although the possible advantages to be accrued from a policy of "internationalist accelerated adjustment" would not be absolute, such a policy would probably remain preferable from a Latin American point of view to either

the continuation of current policy or the adoption of a policy of "nationalistaccelerated adjustment".

Current policies enhance the extent to which Latin Americans and TNCs can build alliances around internationalist positions. An internationalist policy might well increase acknowledgement of the fundamental differences between the way in which Latin Americans define internationalism and the way in which it is defined by TNCs. Problems critical to Latin American industrialization such as "de-packaging" of technology currently controlled by TNCs or the effects of large TNC market shares on domestic industrial structures would remain to be dealt with by Latin American policies.

An adequate conceptualization of future possibilities for the evolution of economic ties between the United States and Latin America must consider the interaction of Latin American and United States policies, not just the possible configuration of United States policy. Thus, one important aspect of potential United States policies is the extent to which they would provoke nationalist responses on the part of Latin Americans. Systematic protectionism, for example, would force a fundamental re-evaluation of the current externally oriented industrialization policies of most Latin American countries. It would not only make resolution of balance-of-payments problems through the expansion of manufactured exports manifestly more difficult and force Latin Americans to curtail their consumption of manufactured imports, it would also make alliances with United States TNCs manifestly less valuable.

A policy of internationalist accelerated adjustment on the other hand would not compel a particular response from Latin Americans. Latin American regimes might respond by offering a complementary openness, but the policy in itself would not preclude a response focusing on trying to develop less vulnerable and limited positions in the international division of labour in manufacturing by building more internally integrated local industries and trying to reduce dependence on external sources of financial capital and technology.

Variation among Latin American countries in terms of the character of their economic ties to the United States must also be considered. It is not

simply fortuitous that Mexico and Brazil have served as the primary examples in each of the three industrial case studies. They not only dominate both the manufactured production and manufactured exports of Latin America, they also account for two-thirds of United States direct investment in Latin America and the largest share of United States trade in manufactured goods. For United States TNCs in sectors like machinery, electrical and electronic equipment and transportation equipment, Mexico and Brazil in combination represent between 80 and 90 per cent of their stake in Latin America. Consequently, it is the policy responses of Mexico and Brazil that are most important to United States TNCs.

Mexico is particularly important. Because of its extensive trade relations with the United States and because of the extent to which United States direct investment in Mexico is linked to United States/Mexican trade, Mexico would be particularly affected by United States adoption of an internationalist approach. Such a development would be particularly advantageous to United States firms operating in Mexico. By the same token, the kind of rupture that would occur in the event that the United States adopted a more stringently protectionist strategy and Mexico replied in kind would be most traumatic, despite the fact that the Mexican economy, more than any other in Latin America except Brazil, enjoys the scale and degree of differentiation necessary to make a more autarkic strategy viable.

The situation with respect to the countries of the Southern Cone (Argentina, Uruguay, Chile and Paraguay) provides the best contrast to the Mexican case. These countries have relatively little trade with the United States and United States TNCs have shown only limited interest in recent years in participating in the development of their manufacturing sectors. The relatively more distant connections between manufacturing in these countries and United States industrial policy is perhaps best indicated by the fact that they have virtually no representation among 806.3/807 exports to the United States. The expected economic benefits from preserving hospitable economic climates in these countries are relatively minor compared to those in the Mexican case. Likewise the costs to the United States of the adoption of more nationalist policies by these countries would be less.

At the same time, the restricted scope of local manufacturing capacity would make it harder for these countries to adopt a more nationalist set of policies, even in the face of increased United States protectionism. Economically, then, the United States would appear to have a great deal of leeway in its policies toward the countries of the Southern Cone. Politically, however, the desire to maintain the good relationships enjoyed with the governments of those countries would restrain United States moves towards instituting an unfavourable industrial policy.

The Brazilian case stands midway between the Mexican and Southern Cone cases. On the one hand, United States direct investment in Brazil is much less oriented toward the United States market than is the case in Mexico. Brazil's participation in 806/807 imports, for example is relatively minor. Its likewise relatively smaller degree of participation in TNC-constructed trade links with the United States makes the possibility of Brazil pursuing a more nationalist course even in the face of an internationalist stance on the part of the United States greater than in the case of Mexico. At the same time, the scale and diversity of its economy gives Brazil a wider scope for movement in the direction of more autarkic policies than is enjoyed by the countries of the Souther Cone. Given that the stakes are higher and the outcome less certain in Brazil than in most other Latin American countries, the possibility of provoking a nationalist reaction in Brazil must be considered one of the major Latin American risks that would be involved in United States adoption of a more stringent protectionist policy or (less dramatically) in the continuation of present policy.

Regardless of United States policies choices, and regardless of the situations of the particular countries involved, the primary determinants of Latin American policies are likely to be internal. Nevertheless, Latin America must continue to formulate industrial policy keenly aware of changing international industrial structures and emerging United States industrial policies. Likewise, United States policymakers must be aware that movement toward protectionism, and to a lesser extent continuation of current policy, does increase the risk of stimulating Latin American responses that would undercut what must be considered objectively a very favourable situation for the United States in general and for United States TNCs in particular. This

heightened awareness on the part of both the United States and Latin America of their industrial strategies and constraints requires a greater transparency in policy formulation and more extensive consideration of the long-term benefits which are possible to achieve within an increasingly "internationalist" industrial policymaking framework.

INTRODUCTION

The purpose of this report is to join an analysis of the changing pattern of industrial production in the United States together with a consideration of its possible international consequences, particularly in regard to the Latin American region.

The erosion of the dominant position of United States manufacturing in the post-World War II world has brought into question the governmental role in industrial strategy. Both comparative advantages based on natural resource endowments and competitive superiority based on more advanced technology have eroded, forfeiting United States dominance of world markets in several sectors. The changing international position reflects and is reflected in profound changes in the structure of the domestic manufacturing sector and has been accompanied by declining rates of productivity growth. These changes have also been accompanied by a general decline in the United States standard of living relative to other industrialized countries.

By the beginning of the 1980s, domestic concern over the state of the United States economy had created debate over "reindustrialization" including consideration of possibilities for a more active governmental role in industrial strategies. Despite the fact that this concern clearly was seen as stemming from changed international circumstances, discussions of the potential consequences of industrial policy have been largely limited to domestic considerations. Plans for improving United States competitiveness and stimulating structural change in United States manufacturing have been discussed with little explicit attention to their potential consequences for the economic goals of other countries; nor, in turn, to the effects of these countries' possible reactions on the success of United States strategies.

The absence of more discussion of international consequences must be of special concern to developing countries like those of Latin America, which are well aware of the extent to which their ability to extricate themselves from current economic difficulties will be affected by United States policy choices. At the same time, however, discussions outside of the United States

concerning the international consequences of United states policy are not frequently coupled with a thorough analysis of the domestic problems and pressures which are generating United States policy.

Trying simultaneously to assess the situation of the United States domestic manufacturing sector, analyse United States industrial policy, and discuss the possible impact on Latin America is an ambitious task and only a partial and preliminary attempt will be provided here.

Part I of the report offers an overview of the position of United States manufacturing. It considers both the decline of the domestic manufacturing sector, particularly as a source of employment, and the rapid growth of manufacturing capacity owned by United States-based TNCs but located outside of the United States. It then goes on to examine the trade and investment relations which link the United States and Latin American manufacturing sectors. Finally, Part I outlines four possible scenarios for future United States policy. Continuation of current United States industrial policy is examined first, followed by descriptive sketches of three alternative policies.

Part II is the empirical heart of the analysis. The focus is on three industrial case studies - steel, petrochemicals and electronics. These case studies are intended to illustrate both the ways in which the international position of the manufacturing sector in the United States has changed and the ways in which the changes have been related to, or have affected the formulation of, United States policy. In each of the industry case studies some attempt is also made to connect the evolution of the domestic industry to changes in trade or investment relations with Latin America.

Part III focuses more on United States/Latin American relations and the possibilities for future interaction. It attempts first of all to point out the important differences in the ties that connect different countries in the region to the United States. It then goes on to consider the possible future implications of the four policy scenarios outlined in Part I, bringing in the insights gained from the examination of the three individual industries in Part II. Finally, Part III looks at possible Latin American responses to each of the policy scenarios in each of the three industrial sectors.

Part IV concludes the report with consideration of two different kinds of outcomes. First, it tries to summarize the future implications of the expected outcomes, that is of the extrapolation of current trends in trade, investment and policy. Then, it considers the implications of a possible trend in United States policy toward a more internationalist oriented accelerated adjustment.

While this report attempts a great deal, there are certain things that it does not purport to do and these should be made clear form the beginning. It does not provide an analysis of the internal dynamics of manufacturing sectors in Latin America. Nor does it provide an analysis of the industrial and trade policies of Latin American countries. Latin America is viewed here in terms of relations to the United States, not in terms of internal dynamics. The report does try to make it clear that a full analysis of Latin American responses to United States policy would require a complementary report on "the changing international position of Latin American manufacturing and Latin American industrial policy", but it does not pretend to be such a report.

Likewise, this report is not an analysis of the global evolution of manufacturing industry and the corporate strategies of TNCs. While the international structure of the industries considered and the strategies of major firms have been touched upon, the primary perspective is from the United States economy looking outward and analytical precedence has been given to changing United States policy rather than to changing firm strategies.

Finally, this report makes no claim to prescience. The "expected" outcomes are <u>ceteris paribus</u> to begin with, and even then must be taken more as speculations than predictions. The aim of the report is not so much to demonstrate consequences but to provoke debate. If it serves to encourage scholars and policymakers in the United States to consider more carefully the international implications of industrial policy and if it provides incentive to scholars and policymakers in Latin America to explore more thoroughly the range of responses to United States industrial policy that are open to them, it will have served its purpose, regardless of whether the outcomes it predicts materialize.

PART I

AN OVERVIEW OF THE CHANGING POSITION OF UNITED STATES MANUFACTURING AND UNITED STATES INDUSTRIAL POLICY

Current trends in United States industry and their potential implications for Latin American industrialization must be interpreted in the light of both the historical position of the United States manufacturing sector in the world economy and the significant recent changes in that position. In Part II of this report, the impetus for policy change and the factors which make change difficult will be examined in relation to specific industries. This initial part of the report offers a general overview of the changing position of United States manufacturing, outlines the general relationship of the United States manufacturing sector to the developing industrial sectors of Latin America, and introduces a range of four different policy scenarios.

A. THE CHANGING INTERNATIONAL POSITION OF UNITED STATES MANUFACTURING

Among the factors which have converged to change the position of the United States manufacturing sector over the past twenty years, five stand out: 1) a shift toward a more service-oriented, knowledge-intensive system of production; 2) an increase in the "transnationalization" of economic activity; 3) "redeployment" of manufacturing capacity to certain developing countries; 4) the "supply shock" generated by the sizable increase in real energy prices during the 1970s; 5) the erosion of United States economic predominance vis-à-vis other industrialized countries. The first four have affected all industrialized economies, but the fifth has magnified their effects on United States manufacturing.

Institutional factors must also be taken into account. The United States has been the "home" for more transnational corporations (TNCs) than any other industrialized country and was even more distinctive in this respect at the beginning of the period. The United States commitment to the free interplay of market forces has at times been more thorough or consistent than those of other OECD governments. The decentralized structure of government in the

United States, combined with a high degree of regional diversity, places practical limits on government participation in economic affairs. Finally, the fact that the United States labour force has grown at more than twice the rate of labour forces in other industrialized countries, combined with lower levels of unionization in the workforce, has created a labour market quite different from those of most other industrialized countries.

At least as important as the domestic institutional structures that shape the structural position of the United States manufacturing sector is the fact that an important part of the United States manufacturing sector, indeed the most dynamic part, lies outside of the geographic boundaries of the United States. The TNCs which control this part of United States manufacturing are powerful domestic actors, both economically and politically. The international structures which shape their preferences must be analysed along with domestic institutional factors in order to understand their influence on United States industrial policy.

1. The decline of the domestic manufacturing sector

At the end of the 1970s manufacturing accounted for less than one fourth of the United States GDP. Overall, services outweighed goods in the GDP by a ratio just under two to one. In the 1960s and 1970s the service sector provided about 24 million new jobs while manufacturing provided only about 4 million [Gray et al., 1982:11*]. One explanation behind the failure of the manufacturing sector to absorb more workers can be seen in the changing relative shares of output and employment of different manufacturing industries, shown in Table I.1. Those industries that were expanding their share of output most rapidly, chemicals and electrical/electronic equipment, were becoming relatively less labour intensive as rapidly as they were expanding and absorbed a slightly smaller share of the total employment at the end of the period than they had at the beginning. Other industries which maintained their share of total output reduced their share of total employment substantially (e.g., apparel and textiles), while declining industries' share of employment decreased even more rapidly than their share of output. Overall, changes in technologies counterbalanced the employment effects of

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* See REFERENCES for complete bibliographic information.

Table I-1

Changes in the Structure of the United States Manufacturing Sector

	Share of total ouput[1]		Share of total employment[2]	
	1959	1979	1959	1979
Growing industries[3]				
Chemicals (SIC 28)	1.4	2.0	1.4	1.3
Rubber and plastic (SIC 30)	0.6	0.8	0.7	0.9
Machinery (non-elec. (SIC 35)	2.4	3.0	2.6	2.9
Electric and electronics (SIC 36)	1.4	2.6	2.4	2.4
Instruments (SIC 38)	0.6	0.8	0.7	0.8
Total growing industries	6.4	9.2	7.8	8.3
Declining industries				
Food (SIC 20)	2.6	2.2	3.0	1.9
Tobacco (SIC 21)	0.5	0.3	0.2	0.1
Printing and publishing (SIC 27)	1.3	1.1	1.5	1.3
Leather (SIC 31)	0.3	0.2	0.6	0.3
Stone, clay, glass (SIC 32)	1.0	0.8	1.1	0.8
Primary metals (SIC 33)	2.4	1.5	2.0	1.4
Total declining industries	8.1	6.1	8.4	5.8
Stable industries				
Textiles (SIC 22)	0.7	0.8	1.7	1.0
Apparel (SIC 23)	0.9	0.8	2.1	1.4
Paper (SIC 26)	0.9	0.9	1.0	0.8
Lumber (SIC 24)	0.7	0.8	1.2	0.9
Furniture (SIC 25)	0.4	0.4	0.7	0.6
Petroleum refining (SIC 29)	0.7	0.6	0.4	0.2
Fabricated metals (SIC 34)	1.8	1.7	2.2	1.9
Transportation (SIC 37)	2.9	3.2	3.0	2.4
Miscellaneous (SIC 39)	0.4	0.6	0.7	0.5
Total stable industries	9.4	9.6	13.0	9.7
TOTAL FOR ALL MANUFACTURING[4]	23.8	24.8	29.0	23.9

Notes:

1. share of industry's contribution to GNP
2. full time equivalent employees
3. "growing" or "declining" means difference between 1959 share and 1979 share is more than 15 per cent of 1959 share
4. detail does not add to total because of rounding

SOURCE: United States Department of Commerce, 1982: 425

growth in output, so that the growth in employment in manufacturing was consistently lower than the growth in the labour force and dropped to zero in the later part of the period [Gray et al., 1982:42].

Even more disturbing, however, were the trends in the growth of productivity, both over time and relative to other countries. Over the twenty years between 1960 and 1980, the United States experienced the lowest productivity growth of any major industrialized nation [United States Department of Labor, 1980: fig.V-7]. In addition, since 1973 the United States, along with other OECD countries, has experienced a sharp decline in the growth of productivity, [Dension, 1979:146]. While some attribute this slowdown in productivity growth primarily to the "supply-shock" created by the rise in energy prices (e.g., Sachs, 1982), the most thorough analysis [Dennison, 1979] suggests that other not fully understood factors were at work. The only area in which United States productivity grew impressively over the whole period was agriculture. Productivity growth in manufacturing was half that of the rate in agriculture and growth in services was slower still [United States Department of Labor, 1980:V-28, table V-12].

The importance of trade has increased dramatically over the same twenty-year period. The United States participated in the general expansion of trade that accompanied lower trade barriers and improved transportation and communication during the 1960s and 1970s. It also found that its need to export rapidly increased because of rising costs of petroleum imports, which reached a peak of US$ 55 billion in 1979 [Bayard, 1980:23,30]. For the United States, which had always been relatively autarkic, the more than doubling of the share of imports in final sales of goods (from 9.3 per cent to 21.3 per cent) between 1970 and 1979 represented a dramatic change [United States Department of Labor, 1980:III-12]. Adjustment to the increased impact of the worldwide economy on the United States was made much more difficult by the fact that it occurred during a period in which some of the sources of United States economic strength were being gradually undermined.

Over the last twenty years, the share of world resources controlled by the United States has been shrinking. At the beginning of the 1960s there was more capital per worker in the United States than in any other country in the world. By 1975 this was no longer true. In fact, because the United States

GNP had grown more slowly than those of other industrialized and newly industrializing countries and because the United States allocated a smaller proportion of its GNP to capital formation, capital per worker in the United States had grown more slowly (1.7 per cent per year) than in all but two other countries. The United States share of total capital resources available in the 34 countries fell from 41.9 per cent to 33.4 per cent while Japan's share rose from 7.1 per cent to 14.7 per cent [Bowen, 1980:table 1].

While the United States comparative advantage in terms of capital resources was decreasing, its relative preeminence in terms of abundant skilled labour and advanced technology was also being reduced. In the same sample of 34 countries, it ranked third from the bottom in terms of growth of skilled labour endowments, dropping from second to seventh place [Bowen 1980:table 2]. Most measures of technological effort show the same relative decline in the United States during the 1970s. Between 1965 and 1977 the number of scientists and engineers per 10,000 in the labour force dropped in the United States by about 10 per cent while it more than doubled in Japan and almost doubled in the Federal Republic of Germany. Over roughly the same period the United States "patent balance" (patents to versus patents granted by) became substantially more negative with the FRG and moved from positive to negative with Japan. Japan and the FRG also begun to pull even with the United States in terms of percentage of GNP devoted to research and development [United States Department of Labor, 1980:tables V-6,7,8].

The shifts in the shares of trade in manufactured goods also reflect the changed United States position in the world economy. The market share of United States manufactured exports decreased in both developing and developed countries from 1962 to 1979, while the shares of Japan and the Federal Republic of Germany increased (see Table I-2). However, the United States share of manufactured imports of developing countries in 1979 (26 per cent) was still much larger than those of Japan or the FRG (19 and 11 per cent respectively). The same trend can be seen in the market shares of particular commodities. Of the top twenty United States exports in 1963, only three have been able to maintain their share in the world market - aircraft, power generating equipment and other electrical machinery (see Table I-3 for data on the top ten). At the same time import penetratior in the United States market

TABLE I-2

United States, Japanese and FRG Shares of Industrialized and Developing Countries'* Manufactured Imports 1963 and 1979 (in per cent)

	1962		1970		1979	
	Industrialized	Developing	Industrialized	Developing	Industrialized	Developing
United States	14.1	34.0	12.9	28.8	9.5	26.1
Japan	2.5	9.9	4.5	17.1	4.2	19.0
FRG	10.8	9.8	12.9	10.6	11.5	11.3

* In the case of developing countries, share is of imports from industrialized countries only.

SOURCE: United States Department of Labor, 1980: tables III-9, 10

TABLE I-3

Trends in World Market Share of top 10 United States Manufactured Exports* 1963 and 1977

SITC	Description	Share of exports		Share of world market	
		1963	1977	1963	1977
732	Road motor vehicles	10.0	14.7	22.1	15.6
719	Machinery (non-elect.)	10.0	10.4	28.3	19.6
734	Aircraft	7.5	9.3	60.2	60.5
718	Machines (special)	4.5	4.2	33.7	25.7
712	Agricultural machinery	4.2	2.3	40.1	25.5
899	Manufactured articles nes	3.6	0.2	66.9	9.8
729	Other elect. mach.	3.6	5.7	29.5	25.7
599	Chemical material nes	3.5	1.9	42.7	20.5
724	Telecomm apparatus	3.3	2.6	26.6	13.3
711	Power generating equip.	2.7	4.5	22.4	23.6

* ranked by share of United States exports in 1963

SOURCE: Bowen, 1980: table 5

TABLE I-4

Import Penetration in Selected Product Markets

Product	Imports as percentage of United States domestic consumption	
	1960	1979
Cars	4.1	21.0
Steel	4.2	14.0
Consumer electronics products	5.6	50.6
Calculators	5.0	43.1
Metal forming machine tools	3.2	25.6
Footwear	2.3	37.3
Textiles	6.6	45.5
Apparel	1.8	10.0
Metal cutting machine tools	3.3	26.4
Industrial inorganic chemicals	2.0	19.0
Food-processing machinery	3.0	18.7
Cutlery	8.2	90.0

SOURCE: Magaziner and Reich, 1982: 33

has increased substantially in a number of key markets. Table I-4 provides some examples: from 6.6 to 45.5 per cent in textiles from 5.6 to 50.6 per cent in consumer electronics products.

In a general sense, many changes in the position of the United States manufacturing sector relative to industrial development in the rest of the world, both developed and less developed, have been negative. But, this evaluation depends somewhat on whether "United States manufacturing" is defined as manufacturing located within the geographic boundaries of the United States (as it has been so far) or whether it is defined as manufacturing owned and controlled by individuals or corporations based in the United States.

2. The growth of the transnational United States manufacturing sector

The growth of manufacturing investment by United States firms outside of the United States has been much more rapid than the growth of investment inside the United States. The book value of United States direct foreign investment (DFI) in manufacturing has grown at an overall annual rate of 11.2 per cent over the last three decades (see Table I-6 below). Between 1960 and 1979 the investments by foreign manufacturing affiliates of United States companies moved from representing about 12 per cent of domestic plant and equipment expenditures to representing about 30 per cent of such expenditures. Moreover, this change was concentrated in high technology industries. While the proportion of non-high technology industries doubled (from about 7 per cent to about 15 per cent) the proportion in high technology industries almost tripled, reaching a level of about 45 per cent by 1979 [United States Department of Commerce, 1980: figure V-11].

In 1977 the aggregate sales of the foreign affiliates of United States manufacturing TNCs were almost US$ 300 billion, or about three times United States manufacturing exports in that year [United States Department of Commerce, 1981a: table 1]. In one survey of TNCs, sales in foreign markets accounted for by foreign production were on the average 2.3 times larger than sales accounted for by exports from the United States. In addition, the foreign affiliates of United States TNCs play a central role in producing the

manufactured goods imported by the United States [Helleiner, 1981:79]. Between 1966 and 1975 majority-owned foreign affiliates of United States TNCs accounted for, on average, 28 per cent of United States merchandise imports. According to Helleiner [1981:10] just under half of all United States imports and a similar proportion of United States exports are "intra-firm" in the sense of taking place between parties related by ownership or sub-contracting ties.

United States TNCs tend to be larger and more dynamic than domestically-oriented United States manufacturers. They are likely to spend more on both product differentiation and R and D and to operate in more oligopolized sectors. In addition, as Bergsten, Moran and Horst [1978] discovered, the fact of having more extensive foreign operations seems to coincide with more profitable operations within the United States in comparison with other similar firms (i.e., firms of similar size, R and D intensity, etc.). TNCs are, in short, the more powerful actors within United States domestic manufacturing.

If then, the "United States manufacturing sector" is defined in terms of the global network of productive activities owned and controlled by United States TNCs, the last twenty years have been a period of expansion and new opportunities. Both the redeployment of industry to Third World countries and the increasing internationalization of the United States economy represent new opportunities for profits as much as threats to established market positions. This is not to say that United States-based TNCs will not be affected by weaknesses in the United States manufacturing sector as the United States remains their most important manufacturing base and most important market. The responses of TNCs to the problem of relative United States decline, however, may differ from the responses of either domestically-oriented United States firms or United States labour.

The structural changes that have occurred in the relative position of the United States manufacturing sector over the past twenty years have presented contradictory pressures to those who would formulate policy. On the one hand, United States TNCs are interested primarily in promoting the increased "transnationalization" of the world economy, i.e., maintaining the gains that

have been made in reducing trade barriers and supporting unrestricted flows of capital and technology. On the other hand, many domestically-oriented manufacturing firms have seen their markets stagnate or even decline while a increasing share of those markets is taken over either by foreign producers or by transnationally-oriented United States corporations. Many such firms seek some sort of official antidote to the structural changes that have undermined their economic well-being.

United States labour has not only seen its relative standard of living decline over the past ten years [cf. Magaziner and Reich, 1982:11-25]; but also its absolute standard of living (in terms of real wages) during most of the period. For many workers in the manufacturing sector, the costs of a more internationalized economy have outweighed the benefits. The political pressure toward attempts to reverse the trends of the last decade is likely to grow with industrial labour's increased difficulties. At the intersection of these conflicting interests, and their political repurcussions, lie the relations between the United States manufacturing sector and the growing industrial output of Latin America.

B. UNITED STATES MANUFACTURING AND RELATIONS WITH LATIN AMERICA

In Latin America, perhaps more than any other region of the world, the expansion of United States direct investment in manufacturing and the rise of manufactured exports to the United States domestic market must be analysed jointly. The East Asian NICs have played a much more important role than their Latin American counterparts in the penetration of United States markets, but they are not part of the global network of United States TNC investments in the same way that Latin America is. While the East Asian NICs could be severely affected by changes in United States trade policy, Latin Americans are concerned about policy-induced changes in the behaviour of United States TNCs producing for their domestic markets as well as about trade issues.

1. United States/Latin American trade in manufactures

Trade in manufactures between the United States and Latin America has increased about fivefold (in current US$) over the past decade (see Table I-5), but the Latin American side of the trade has been the more dynamic.

TABLE I-5 Growth of Trade in Manufactured Goods: U.S., Latin America, and the World. 1970-1979 (in $US millions)

Panel A: Matrix of Trade in Manufactures

Exports from \ Exports to	U.S.	Latin America	World
U.S.		1970: 5,031 1979: 21,801 Growth: 433%	1970: 29,370 1979: 117,105 Growth: 399%
Latin America	1970: 933 1979 4,458 Growth: 477%		1970: 3,358 1979: 18,360 Growth: 547%
World	1970: 26,141 1979: 111,567 Growth: 427%	1970: 13,233 1979: 59,942 Growth: 453%	1970: 202,360 1979: 978,665 Growth: 484%

Panel B: Balance of Trade in Manufactures.

	1970	1980
Balance of U.S. with LA (from U.S. Perspective)	+4,098	+17,343
Balance of U.S. with World	+3,224	+ 5,538
Balance of LA with World	-9,875	-41,582
U.S./LA Balance as % of US/World	127%	313%
U.S./LA Balance as % of LA/World	41%	42%

Notes: Manufactured goods = SITC 5-8
Latin America includes Caribbean
Growth = 1980 as % of 1970
U.S.=United States; LA = Latin America

SOURCE: UN, 1981: 1131-1145

Latin America's worldwide manufactured exports grew more rapidly than world trade in manufactures overall, while United States exports, as already noted, grew substantially more slowly. Likewise, Latin American imports of manufactures grew more rapidly than United States imports. Consequently, even though the United States share of the Latin American market shrank slightly (from 38 to 36 per cent) while the Latin American share of the United States market grew slightly (from 3.5 to 4.0 per cent), Latin America absorbed a larger share of total United States manufactured exports at the end of the decade than at the beginning (18.6 vs. 17 per cent), while the United States absorbed a smaller share of Latin American manufactured exports (24.3 vs. 27.7 per cent).

The degree to which Latin America's market for United States manufactured goods grew during the course of the decade can be seen more clearly in the data on the balance of trade in manufactured goods (see Table I-5, panel B). The United States worldwide trade surplus in manufactured goods shrank from about 10 per cent of total manufactured exports in 1970 to about 5 per cent in 1979 - the degree to which its positive balance with the rest of the world increased. Without Latin America the United States would have had in 1979 a negative balance of trade in manufactures of almost US$ 12 billion instead of a positive trade balance of over US$ 5 billion. This is not to say that its manufactured trade with the United States is not also important to Latin America. Increased markets for manufactures are essential to any mitigation of Latin America's chronic balance-of-payments problems and the United States remains Latin America's single most important market. Japan, for example, absorbs only about one fifth the amount of Latin American manufactured goods that are imported by the United States

2. Manufacturing DFI in Latin America

United States manufacturing investment in Latin America, like United States manufacturing investment elsewhere in the world, has grown at a fast clip for the last three decades, averaging 10.2 per cent annually (see Table I-6). Since 1950, manufacturing has gradually overtaken public utilities and extractive investments as the most important sector of United States DFI. Declining interest in extractive and public utility investment has resulted in

a drop in the overall share of United States DFI in Latin America (and developing countries generally). But, manufacturing investment in Latin America has kept pace with the growth of United States manufacturing investment in the industrialized countries, increasing almost twentyfold between 1950 and 1979. Manufacturing investment in other developing countries however, has grown even faster, as United States TNCs increasingly dispersed their activities in the Third World.

The most rapidly growing category of United States DFI in the 1950 to 1979 period was manufacturing investment in developing countries outside of Latin America (see Table I-6). In recent years, there has been a growing tend for United States TNCs to invest more in non-Latin American countries. Between 1979 and 1981, while United States manufacturing investment in Brazil and Mexico grew just over 25 per cent, United States manufacturing TNCs more than doubled their investments in Singapore and Malaysia. During 1982, the preference of United States TNCs for Latin American manufacturing locations declined not only in relative but also absolute terms. Worried by rising debts and falling growth rates, United States TNCs decreased the flow of funds to the largest Latin American countries by almost 60 per cent in comparison with 1981 flows. Mexico, Venezuela and Argentina all experienced net outflows of investment funds during the third quarter of 1982 [Latin American Weekly Report, 25 March 1983:9].

These figures must be sobering to those who would view United States DFI as part of the solution to Latin America's balance-of-payments problems. Clearly, flows of DFI have the disadvantagous probability as far as Latin American policymakers are concerned of being withdrawn or decreased just when they are needed the most. Recent declines in inflows of direct investment should, however, not be taken to indicate that United States manufacturing TNCs are pulling out of Latin America and moving to East Asia. While there is clearly a geographic shift in export-oriented manufacturing investments, Latin America still accounts for 80 per cent of the developing countries' share of United States manufacturing DFI.

United States manufacturing investments in Latin America are not only quantitatively much more important than those in East Asia, they are also

TABLE 1-6

Growth of United States Direct Foreign Investment (DFI) in Manufacturing 1950-1978 (in US$ millions)

Investment by the United States	1950 Amount	1950 % of Total	1979 Amount	1979 % of Total	Average annual Rate of Growth
Total DFI	11,788	100	192,648	100	10.1%
of which, in manufacturing	3,831	32	83,564	43	11.2%
DFI in developing countries	5,736	49	47,841	25	7.6%
of which, in manufacturing	847	7	16,198	8	10.7%
DFI in Latin America	4,577	39	36,834*	19	7.5%
of which, in manufacturing	781	7	13,220	7	10.2%
DFI in manufacturing in non-Latin American developing countries	66	0.5	2,978	1.5	14.0%

*N.B. Latin America includes the Caribbean, and therefore the proportion of investment in manufacturing appears much lower because of the several billion dollars of financial investments in the Caribbean. Manufacturing as a proportion of total investment in Central and South America is over 50 per cent.

SOURCE: United States Department of Commerce, 1981b: table 1.

Table 1-7. Distribution of U.S. Direct Foreign Investment in Manufacturing by Industry - 1980 (in US $ millions)

Industry	Worldwide Amount	Worldwide %	Latin America Amount	Latin America %	LA as % of World
Food and Kindred	8,283	9.3	1,675	11.6	20.2
Chemical and Allied	19,044	21.1	3,586	24.7	18.8
Primary and Fabricated Metals	6,298	7.1	1,376	9.5	21.8
Machinery (non-electrical)	15,997	18.0	1,368	9.4	8.5
Electrical and Electronic machinery	7,302	8.3	1,023	7.1	14.0
Transportation Equipment	12,343	13.8	1,862	12.9	15.0
Other	19,796	22.2	3,599	24.8	18.2
TOTAL	89,063	100	14,489	100	16.3

SOURCE: U.S. Department of Commerce, 1981c: table 12.

qualitatively different. Unlike United States TNC involvements in East Asia, United States manufacturing investments in Latin America grew out of the desire to service local markets. Because of this origin, United States manufacturing DFI in Latin America is remarkably diversified (see Table I-7). Except for the under representation of non-electrical machinery, the sectoral distribution of Latin American investment parallels reasonably closely the distribution of United States manufacturing investments in developed countries, in contrast to, for example, Singapore, where almost 60 per cent of all United States manufacturing investment is in one industrial group, electrical and electronic equipment. For a number of United States TNCs in a variety of industries, Latin America represents their most important commitment of capital in the Third World. Conversely, United States TNCs weigh heavily in the domestic productive structures of Latin American countries in these same industries, as well as in the production of manufactured exports for the United States market.

3. Manufacturing DFI and Latin American exports to the United States

The important connection between DFI and import penetration of the United States market can be seen in Table I-8. For the major Latin American exporters of manufactures, the magnitude of exports to the United States is directly correlated with the proportion of exports which are "related-party". While the development of "traditional" manufactured exports (e.g., textiles, apparel and footwear) has not taken place within the global networks of United States firms (except in the special case of Mexico), the ability of Latin American countries to penetrate the non-traditional markets of electrical and non-electrical machinery is clearly facilitated by the possibility of operating within TNC networks. Because these latter markets are the more dynamic within the United States domestic market (cf. Table I-1), the link between TNC behaviour (and therefore United States policy toward TNCs) and the trade prospects of the major Latin American manufacturers is undeniable.

Latin American manufactured exports to the United States must be viewed not only in the context of United States DFI in Latin America but also in comparison with other developing countries' manufactured exports to the United States. While Latin American exports to the United States were increasing

TABLE I-8. U.S. Related Party Imports as a Proportion of Total U.S. Imports of Selected Manufactured Products and All Manufactured Products from Latin American Newly Industrializing Countries 1977

Country	Selected Products					All Manufactured Products	Value of All Manufactured Imports (US $ millions)
	Textiles (SITC 65)	Non-Elect. Machs. (SITC 71)	Electrical Machinery (SITC 72)	Clothing (SITC 84)	Footwear (SITC 85)		
Argentina	0.5	39.1	76.1	2.9	0.8	9.2	167
Brazil	9.2	59.9	95.3	18.0	0.5	38.4	755
Columbia	1.5	16.8	3.9	15.7	81.2	14.1	60
Mexico	9.6	87.8	95.6	68.0	60.9	71.0	1,798

SOURCE: Helleiner, 1981:70

less than fivefold during the 1970s, United States manufactured imports from the developing countries of Asia were increasing almost eightfold [UN, 1981: Special Table C]. It is the developing countries of Asia above all that are responsible for increasing the developing countries' share of United States manufactured exports, from 13.7 per cent in 1970 to 25.8 per cent in 1980 [United States Department of Labor, 1980: Table III-12]. In 1977 Hong Kong, South Korea, Taiwan Province of China, and Singapore supplied over 60 per cent of United States imports manufactures [United States Congress, 1980:437].

Despite the relatively small amounts of United States DFI in these countries (in combination it amounts to less than a quarter of the United States manufacturing DFI located in Brazil alone), the export-oriented nature of United States DFI in East Asia has produced the pattern of related-party trade similar to that found in Latin America. For the Asian NICs, as for their Latin American counterparts, traditional manufactured exports are likely to be handled by locally-owned firms while trade in electrical or non-electrical machinery is very likely to take place within corporate networks. (In the case of Singapore, for example, 97 per cent of its electrical machinery exports to the United States and 90 per cent of its non-electrical machinery exports were "related-party" [Helleiner, 1981:70].

The policy environment confronted by Latin American manufactured exports to the United States is shaped then on the one hand by the intimate connection between many of these exports and United States TNC strategies, and on the other hand by the impact of manufactures from other developing countries, primarily those from East Asia. From a macro-economic point view it might seem that manufactured imports from developing countries should not be a policy issue at all. Despite the surge of the East Asian NICs, exports from developing countries at the end of the 1970s accounted for only about 1 per cent of United States GDP and less than 2 per cent of United States consumption of manufactured goods [Fishlow, 1981:19; Franko, 1981:486]. Furthermore, most analyses of the effects of trade on employment [e.g., Frank, 1977; Krueger, 1980] find that it is overall trends in output and changes in "productivity" (the amount of labour used in the production process) that are the primary determinants of employment trends, not import penetration [Gray, et al., 1982:45-49]. From a macro-economic point of view, even taking into

account the special concerns of labour, it would be hard to argue that United States gains from trade with developing countries in general and with Latin America in particular did not outweigh the costs. It is because of their special impact on particular industries that developing countries' imports have become a policy issue.

Developing countries' traditional manufactured imports have tended to affect most acutely those industries which are facing the severest challenges by other long-term trends. Footwear is the archetypal example. An industry which is declining both in terms of its output and real wages, the footwear industry offers shrinking and relatively unattractive employment opportunities for workers as well as dubious opportunities for entrepreneurs [Gray, et al., 1982:42, 89-94, 106]. Yet the relatively unskilled workforce in the industry, to say nothing of the numerous small entrepreneurs, find themselves without more attractive alternatives. Consequently, the rise of imports becomes a natural target [Evans, 1979a]. Neither workers nor entrepreneurs expect the government to protect them against the unfavourable evolution of the industry overall; protection against imports is a more plausible second-best option. The United States did, in fact, negotiate "Orderly Marketing Agreements" (OMAs) with Taiwan Province of China and South Korea, and put pressure on Brazil to reduce its export incentives. The economic situation of the footwear industry remains equally grim, but some symbolic relief was obtained.

Since the industries most affected by developing countries' traditional exports are often low-productivity, labour-intensive operations in competitive markets populated by smaller domestically-oriented capital, they are precisely those which are most likely to lobby for, and obtain, relief through protectionist measures [cf. Franko, 1981]. While the macro-economic impact of Third World imports may look insignificant, the micro-economic impact could hardly be more dramatic, or less politically advantageous, from the point of view of developing countries.

Nor is the problem likely to dissipate. Projections for the future evolution of the world economy by UNIDO, the OECD and the IBRD all agree on two things: Trade will grow more rapidly than domestic production, and production in developing countries will grow more rapidly than in developed

countries [Fishlow, 1981:34]. Barring a dramatic reversal of the support for trade liberalization on the part of the United States and other industrialized countries, imports from developing countries will continue to grow as a proportion of domestic consumption. If one assumes in addition that current trends will continue with regard to the declining ability of manufacturing to absorb labour (and from the perspective of the early 1980s, a continuation of the trends of the 1970s seems an optimistic rather than a pessimistic prediction), then a political debate over foreign trade within the domestic political economies of industrialized countries is in the offing. Helleiner [1981:89] sums up the current political alignments quite nicely:

> United States trade policy is now the product primarily of the political pressures from TNCs on the one hand and organized labour on the other. Where these interests are in conflict in particular industries, the evidence suggests that the former will usually win, and liberal trade policies will be pursued. Where United States firms are not internationally-oriented, however, they are likely to ally with labour and to achieve some success in generating protection from competitive imports.

As long as this analysis remains basically correct, Latin America has the possibility of trying to use its TNC investors as allies both in maintaining the general openness of the United States economy and in serving as channels for "non-traditional" exports to the United States. But the question remains whether the current policy environment is likely to persist in the face of worldwide economic stagnation and the particular problems generated for the United States by its declining international competitiveness.

C..CURRENT UNITED STATES INDUSTRIAL POLICY AND POSSIBLE FUTURE ALTERNATIVES

Continuity is always the safest forecast. Despite the pressures for change, United States policy is likely to persist in its current form. Modifications are, nonetheless, possible. One way of clarifying the directions in which such modifications might move is to set out, in schematic form, the major alternatives. The nature of current policy might be characterized as <u>ad hoc</u> protectionism, i.e., protectionist measures applied piecemeal to various sectors in response to demands for relief, in the absence of an overall guiding framework for governmental efforts to foster restructuring. The most likely alternative to this policy is active

retardation of structural adjustment. A second, perhaps less likely, possibility is a policy of positive adjustment focused on achieving increased competitiveness in international markets. The final possibility might be called "internationalist accelerated adjustment" which would focus on shifting domestic resources, especially labour, so as to improve manufacturing performance, but would eschew solutions focused primarily on trade competition.

This typology of future policies should be taken for what it is: a set of simplified scenarios designed to illustrate the implications of different policy tendencies. While it claims none of the analytical rigor of more elaborate attempts to model the future of the international economy, such as the OECD interfutures report, it is offered in the same spirit - as a device to stimulate thinking about the consequences of different policy choices. The complicated politics of future policy formation are likely to produce more complex (and inconsistent) combinations of policy than those discussed herein but such complex combinations are still likely to be built out of the elements of the four basic scenarios under consideration.

1. The character of current industrial policy

The simplest summary of current United States industrial policy is, of course, that there is no explicit official set of objectives and policies for the sector. However, the Economic Report for 1980 noted that "recognition that increased adjustment is needed and that the resources needed to smooth that adjustment are limited has led some to propose an explicit 'industrial policy'" [United States Council of Economic Advisors, 1981:127]. Consideration of the idea that some kind of sectorally-specific "positive adjustment" policy might be in order has waned under the succeeding Administration. Nonetheless, existing policies inevitably do shape the sectoral distribution of manufacturing as well as overall growth rates. Perhaps even more important, current policy shapes the political environment out of which future policy will emerge.

(i) Trade policies

Support for a "liberal" international regime, one characterized by reduction of trade barriers and free flows of capital, has been a mainstay of

United States international economic policy. The United States has played a major role in the reduction of industrialized country tariffs on industrial goods from their average of 50 per cent at the beginning of the GATT to their post-Tokyo round average of 7 per cent [Fishlow, 1981:46]. Nevertheless, United States Administrations have reacted to domestic economic distress and its political consequences by entering into bilaterally-negotiated quantitative restrictions on trade to provide sector-specific protection without raising tariff levels [Fishlow, 1981:51].

Traditional manufactured exports from developing countries have been the primary victims of this protectionism. Labour-intensive industries like textiles, footwear, etc. have been the prime proponents of such policies. Most recently, however, protectionism has become a central issue in more capital-intensive, high-wage industries like steel and autos, as exemplified by the institution of the trigger-price mechanism (TPM) in steel and the negotiation of voluntary restrictions on auto imports with Japanese auto makers. In the case of the textile industry, one of the earliest beneficiaries of negotiated trade restrictions, the policy has been successful in preserving a domestic industry whose existence would not seem to make sense in strictly economic terms [Gray, et al., 1982:131]. In general, however, the fate of the footwear industry would seem the more likely result of more active attempts at retarding structural adjustment.

Another facet of attempts in the United States to preserve the existing structure of domestic industry has also had the effect of restricting the growth of exports from Latin America and other developing countries. Over the course of the 1970s, the United States has challenged exports which it believed to be subsidized by other governments. These criticisms have tended to focus on the more routinized labour-intensive industries in which Latin American exports are concentrated, with footwear, textiles and apparel figuring prominently [Odell, 1976:3-5].

United States trade policy has not, of course, consisted simply of attempts to insulate the domestic market from the effects of international

competition. Promotion of United States exports has also been an important aim. Although advocates of a more active industrial policy would argue that not enough has been done in this regard, institutions like the United States Export-Import Bank have been quite important to United States exporters. A good example of the degree of commitment to export promotion is provided by the recent behaviour of the Export-Import Bank in relation to Mexico. Despite the fact that it has recently had to write off hundreds of millions of dollars of its debts, the Export-Import Bank has affirmed its intention to continue extending credit to Mexico in order to enable continued purchase of United States goods [Latin America Weekly Report, 31 March 1983].

(ii) Policy toward foreign investment

Given the role of United States TNCs in Latin American manufactured exports, the United States policy of promoting TNC expansion might seem generally consistent with Latin American industrial goals. In certain respects this may in fact be the case. Mexico, for example, has been one of the principal locations for exports back to the United States with the reduced duties allowed under tariff provisions 806.3 and 807, which were designed primarily to facilitate the international operations of United States firms [see Helleiner, 1981:35-40]. The concurrence of TNC interests and Latin American industrial development is not, however, a matter to be taken for granted.

Negotiating entry for TNC investments conditioned on particular kinds of desired performance has become an important element in the industrial policy of major Latin American nations. The classic form of these bargains is a trade-off between fiscal and tax incentives provided by the host government and a contribution to local value added and balance of payments provided by the TNCs [see Bergsten, Horst and Moran, 1978; Evans, 1979, 1982; Gereffi and Evans, 1981; Bennett and Sharpe, 1979, 1981]. The imposition of such "performance requirements" is now placed by United States policymakers in the same category as import quotas and export subsidies, as unfortunate market distortions [see, for example, Hormats, 1981:16-20; United States Department of Labor, 1980:V-42-43]. Thus, under the principle of free investment flows, United States policy may have the effect of restricting Latin American attempts to harness TNCs to their own programmes of industrialization.

Overall, the most active part of United States industrial policy has been certain forms of assistance to TNCs deciding to move productive investments abroad (e.g., OPIC insurance, tax deferrals, 806.3 and 807 tariff reductions). Decisions on which industries would move abroad and which would be developed domestically remain in the hands of the private sector.

(iii) Policy toward domestic manufacturing

Domestically, there are, as in all modern states, a host of taxation and subsidy policies which influence the distribution of manufacturing investments [cf. Magaziner and Reich, 1982:235-254]. They are not, however, designed with structural adjustments in mind. Government procurement and R and D funding justified on the basis of national defense has resulted in substantial support for particular industries such as nuclear power and aviation. These policies and the activities of the Export-Import Bank in promoting overseas aircraft sales most probably contributed to the fact that the aviation industry is one in which the United States has maintained real dominance in world export markets (see Table I-3 above).

Other examples of federal government impact on the sectoral distribution of investments in the domestic economy include the long history of federal government price supports and subsidies to agriculture, which stands in the background of current American success as an agricultural exporter [Diebold, 1981:36]. Support for the construction industry through tax concessions and loan guarantees to home buyers is second major example of federal impact on investments [Magaziner and Reich, 1982:248]. Federal highway programmes were a crucial element in the expansions of the market for automobiles. Federal "bail outs" of companies like Lockheed and Chrysler might also be considered as examples of the ad hoc nature of United States industrial policy. The rationale for the programme seems to lie more in the response to the difficulties faced by a particular, politically important constituency than in a broader, more systematic attempt to produce a more efficient economy.

Even Trade Adjustment Assistance (TAA), which is explicity aimed at diminishing the extent to which the burden of structural adjustment falls disproportionately on workers and communities tied to affected industries, is not designed primarily with a view to shifting resources out of declining industries. Its effects may, to the contrary, be adjustment retarding. Comparisons of workers receiving only normal umemployment insurance have found that those receiving TAA are less likely to change industry or occupation [cited in Gray et al., 1982:114]. Trade Adjustment Assistance may well have played an important political role in mitigating labour resistance to structural change, but it is unlikely to perform even this role in the future since budget cuts have reduced its funding by 80 per cent [Hart 1982:16].

(iv) Effects of current policy

Current United States industrial strategy can then be summarized as consisting primarily of an acceptance of the leading role of market forces. The rather limited active involvement by government has been either fortuitous, in pursuit of other goals, or with the explicit aim of retarding the process of structural adjustment (primarily for reasons of immediate expediency). This approach has tended to let the costs of structural change fall on individuals and communities in traditional industrial areas without providing sufficient retraining or reinvestment schemes. It also appears to have been largely ineffectual, in encouraging productivity changes or in enlarging labour absorption. It could thus be assumed that continuation of current policies will not be conducive to changing the continuing moderate growth rates and shrinking employment opportunities in United States manufacturing.

Latin America has been affected by current trends in several ways. First, as has already been mentioned, their exports have been hit by United States ad hoc protectionist measures while their own development-motivated protection of infant industries are increasingly criticized. Second, because current policies have not catalyzed significant "churning" of productive resources within the United States domestic manufacturing sector they have not expanded the space into which Latin American exports might move.

2. Active retardation of structural change as an alternative policy

The Burke/Hartke bill of 1972 represented the most serious recent attempt to embrace a position which would extend a turn toward avowedly protectionist principles coupled with a removal of support for the expansion of DFI. Its failure to be passed into law can be taken as good evidence that policy preferences for free trade, including those of TNCs, generally prevail over requests for assistance from suffering groups of organized labour.

In addition to international commercial interests, powerful general welfare arguments can be raised against retarding structural adjustment. The gains to workers in manufacturing industries are likely to be more than cancelled out by losses in real income to service sector workers and others who produce non-tradables and who would face higher prices for a range of tradable commodities without any prospect of a corresponding increase in real wages. Such a policy would slow the rate of technical change domestically as well as threaten important United States markets for capital goods abroad.

Arguments of the "infant industry" sort which may be raised by developing countries do not apply to the United States economy. It is therefore difficult to make a general welfare case (other than "second-best arguments" which assume unwillingness to shoulder transition costs collectively) in favour of structural retardation, but the current policy context does hold the potential of expanded political support for this alternative.

Policies aimed at retarding structural change speak to the distress of important segments of labour (and domestically-oriented capital) who protest bearing a disproportionate share of the burden of the adjustment. Measures to retard structural change give the appearance of shifting the cost of alleviating their distress not onto some other domestic group but onto other countries. While it may not be the desired alternative of owners and managers

of large corporations, it may be preferred to alternatives which entail direct intervention on the part of the State in the workings of domestic markets for labour, capital and commodities.

Recent shifts in the situation of basic manufacturing industries have significantly enhanced the emergence of forces in favour of policies of active retardation. The most prominent examples of economic distress in the United States manufacturing sector are no longer confined to low-wage competitive industries like footwear but now include high-wage oligopolized industries, primarily steel and auto.

The response of the auto industry is particularly telling since it is an archtypically transnational industry with a major stake in overseas markets. Faced with an unprecedented combination of heavy import penetration and a shrinking market, auto TNCs have begun to demand treatment as an infant industry. It has been suggested that patterns of automotive production, trade and investment will in the future be determined at least as much by government policies as by trends in comparative advantage per se" [Whitman, 1981:24]. The president of the Ford Motor Company, Phillip Caldwell, suggested the imposition of local content requirements for the United States domestic auto market [Caldwell, 1981:79].

When transnationally-oriented companies begin to join domestically-oriented industries like steel in looking for government policy to protect them against international markets, the balance of power in favour of openness clearly becomes more delicate. Efforts to institute policies to support positive adjustment can go far in offsetting or forestalling demands for such protection. As one analyst put it [Hart, 1982:18], "failure to confront directly the problems of specific industries in economic policy is highly likely to lead to protectionism as a last resort."

3. Nationalist accelerated adjustment

A specific industrial policy in the sense of active state intervention at the sectoral level on behalf of accelerated structural adjustment is unlikely. Nonetheless, proposals for such a policy have persistently been put forward ever since the beginning of the decade.* Even though such proposals are unlikely to be adopted, their influence should not be discounted, especially in post-1984 scenarios. The argument is simple and compelling. "A coherent strategy for pursuing the goal of international competitiveness is surely preferable to ad hoc policies that are developed in response to the politically powerful but often less competitive businesses within various industries" [Magaziner and Reich 1982:341].

The emphasis of industrial policy advocates on "international competitiveness" is highly problematic as far as the rest of the world is concerned. Some of the most internationally-oriented advocates of adjustment aimed at trade competitiveness argue that improved trade performance will be derived from new products and therefore be in the service of expanded world trade rather than at the expense of trading partners. Such a view appears overly optmistic. In the Japanese experience, for example, while some trade successes have been based on new products, like video cassette recorders, gains in traditional basic industries, like steel and autos, have been much more fundamental.

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*One highly publicized clarion call for a more active industrial policy was issued by the editors of Business Week in a special issue on "reindustrialization" in June 1980:

> The industrial plans of other nations, enforced by a growing web of subsidies, tax incentives, and other arrangements, mean that international competition is becoming increasingly influenced by government policy. And the United States has no real option but to develop its own industrial policy to avoid falling behind...To a great extent industrial policy overseas is becoming a contest among advanced countries in which the government attempts to pick the winners from potential export-oriented industries and push their development as hard as possible. Thus, the lists of target industries that come out of government offices in Paris and Tokyo are solidly packed with high-technology enterprises. The United States, of course, must do the same (Business Week, 30 June 1980:120).

Improved United States trade performance might be based on exports of new products, like computers and communication satellites, but it would entail, of necessity, substantial shifts in the trading patterns of existing products. Thus, if accelerated structural adjustment in the United States is seen as primarily in the service of improved trade performance, success would have strong negative implications for its trading partners. Japan and the Federal Republic of Germany would be the major targets of such a shift, but its implications for Latin America might also be significant.

A policy of accelerated structural adjustment would, by definition, diminish the domestic capital and labour tied to traditional, labour-intensive industries which would otherwise demand protection against manufactured exports coming from Latin America. In this respect, nationalist accelerated adjustment would be an important improvement over current policy, as well as over policies aimed at retarding structural adjustment. Beyond this, however, attempts to improve United States international competitiveness might well be inimical to Latin American interests.

A strong policy to promote exports would run counter to Latin American attempts to protect infant industries and promote structural adjustment in their own manufacturing sectors by moving both exports and domestic production up along the product cycle toward more capital- and knowledge-intensive industries. If United States policies to accelerate structural adjustment were to be based primarily on increasing international competitiveness and improving trade balances, Latin American governments would need to prepare to face challenges to some basic tenets of their industrialization strategies. For example, efforts to include technology transfer and export performance requirements in agreements with TNC investors might need to be reevaluated and strengthened.

4. Internationalist accelerated adjustment

Since nationalist appeals have been the primary, albeit infrequent, means of deviating from the traditional United States pattern of limited government involvement in industrial development, adoption of an "internationalist" policy of accelerated structural adjustment appears unlikely. The deep interventions in domestic markets required by an internationalist approach are unlikely to be undertaken simply in hopes of increasing rates of economic growth and improving standards of living - as opposed to wartime exigencies. Nonetheless, since such a policy is probably the most desirable in terms of its potential impact on Latin America, it is worth setting out as an alternative.

Paradoxically, an "internationalist" approach would have to define the problems of United States manufacturing less in international and more in domestic terms. Internationalist accelerated adjustment would focus on increasing domestic productivity by shifting resources into more productive sectors, but it would avoid the assumption that the route to higher levels of welfare lies primarily through improved trade balances. Shifting resources from lower- to higher-return activities and promoting productivity-enhancing innovations throughout the manufacturing sector would be the main focus. The principal features of such a policy would include programmes designed to mitigate the risk involved in shifting capital into uncertain but technologically-promising new ventures, to increase positive externalities for research and development in general, and, perhaps most important, to substantially increase investment in "human capital" - the education, training and retraining of the United States workforce.

Higher levels of exports should follow from increased emphasis on advanced manufacturing sectors but, increasing exports would be a by-product and not an aim in itself. At the same time, an internationalist stance would imply anopenness to imports, even imports in more advanced sectors. In fact, such a policy would probably be accompanied initially by larger deficits in the trade

balance since more rapid rates of growth have immediate effects on demand for imports whereas demand for United States exports would depend in part on recoveries in major foreign markets.

Since an internationalist programme of accelerated adjustment implies both rapid structural shifts and minimal insulation from the international economy, such a policy would require a powerful domestic welfare component. It would need to include not only support for workers shifting to employment in other sectors but also infrastructural support for communities aimed at minimizing the degree to which sectoral shifts entail destructive geographic dislocations.

One advantage of the internationalist approach is that the scale of the United States economy becomes a unique advantage, rather than an additional difficulty, to other nations in their restructuring efforts. The size of the United States means that its domestic successes have a real effect on stimulating growth in the world economy overall and therefore in the markets for its own exports. There should therefore be a strong constituency in the United States for an internationalist approach since United States TNCs would be important beneficiaries of growth elsewhere in the world.

An "internationalist" programme of structural adjustment would give Latin Americans the open United States market that they need to be able to develop export-oriented manufacturing capacity. But, because it would not involve reliance on external markets for solutions to United States welfare problems, the internationalist approach would allow for a flexible United States response to Latin American desires for temporary insulation of new industrial ventures. An internationalist approach would also help mitigate United States/Latin American conflict over Latin American attempts to bargain more effectively with United States TNCs.

PART II

THREE ILLUSTRATUVE INDUSTRIAL CASE STUDIES

A. STEEL: UNITED STATES DECLINE AND LATIN AMERICAN EXPANSION IN A BASIC INDUSTRY

The United States steel industry's comparative advantage disappeared over the course of the 1950s and 1960s and it was confronted with economic disaster in the late 1970s and early 1980s. Shrinking demand coupled with competition from more efficient foreign producers created massive losses for the companies involved and tens of thousands unemployed steelworkers. As Latin American steel industries began to face growing over-capacity in the beginning of the 1980s, steel became a matter of contention in United States/Latin American relations.

1. World overcapacity and the changing international division of labour in steel

At the end of the 1950s the United States still dominated the world steel industry. United States capacity was double that of the European Steel Community and five times that of Japan [Crandall, 1980:143]. Even though United States steel companies focused their attention almost exclusively on the domestic market, the United States exported three times as much steel as it imported (see Table II-1). Steelworkers earned wages that were about 50 per cent higher than the average wage in United States manufacturing (see Table II-5) and while rates of return varied substantially from company to company, even the larger and less efficient United States firms were able to protect their profits through "administered pricing". But the United States industry's "golden age" was already over and the industry was in the process of being restructured internationally.

(i) International competition and trade tensions

The principal challenge to the United States position in steel came from Japan. Japanese capacity which was 10 per cent of United States capacity in

Table II-1. Evolution of United States steel production 1956-1981
(Millions of Tons/Year)

	1956	1966	1972	1978	1982
United States capacity	129.9	149.4	156.2	156.0	-
United States production	115.2	134.1	133.2	137.0	122.0
United States exports[1/]	4.2	1.7	2.9	2.4	2.8
United States imports[1/]	1.3	10.8	17.7	21.1	18.0
World production	313.4	521.1	694.6	790.6	-

1. Steel mill products.

SOURCES: Crandall, 1981:24-25
United States Department of Commerce, 1982:153 - for United States production and trade, 1981.

Table II-2. Steel production in Latin America 1970-1978
(in thousands of tons/year)

	1970	1973	1978
Brazil	5,390	7,150	12,107
Mexico	3,881	4,760	6,775
Argentina	1,823	2,205	2,786
Venezuela	927	1,063	859
Other countries	1,160	1,509	1,432
Total	13,181	16,687	23,959

Source: Wilkie and Haber, 1981:227

1956, had doubled by 1960. Japanese exports reached the level of United States exports by the early 1960s and then began to accelerate dramatically. By 1978, Japan had increased its capacity over fivefold from 1960 levels, surpassing United States capacity. Its exports had grown even more rapidly until it was the world's largest exporter with exports fifty per cent greater than those of its nearest rival, the Federal Republic of Germany, and ten times greater than those of the United States [Crandall, 1981:26-27]. European steel also expanded dramatically over the 1960s and 1970s, more than doubling over 1960 levels until combined European capacity also exceeded that of the United States [Crandall, 1980:143].

Worldwide demand for steel essentially stopped growing in 1973. Substantial declines between 1973 and 1974 could be attributed to the oil shock, and in the late 1970s it appeared that demand might catch up with capacity by 1985 [see Kono, 1980:79]. The deterioration of demand in the early 1980s made it clear, however, that the problem of overcapacity was likely to be chronic. In the United States, production for 1981 was already heading back to the depressed levels of 1975 and 1982 was much worse than 1981. The Japanese domestic market recovered from its mid-1970s decline, leaving it to absorb an output equivalent to less than 50 per cent of domestic capacity.

Construction of new capacity stopped in the OECD countries, but it was too late. Europe tried unsuccessfully to solve the problem by eliminating inefficient capacity and allocating production. Both Europe and Japan looked to increased exports as a way of alleviating the problem. In Japan exports rose from 28 per cent of total production in 1973 to over 50 per cent of local production in the late 1970s. The United States, with high production costs and no tradition of competing in exports markets, did not have this option. Even worse, the United States, while no longer the world's largest producer, was still the world's largest market and therefore a natural target for the export drives of other producers. The tendency of United States producers to attribute their problem to "unfair foreign competition", which had begun with increased import penetration in the 1960s, intensified in the 1970s and 1980s.

(ii) Changing position of developing countries

During the 1960s and the 1970s, the growth of demand for steel in the

developing countries was the most dynamic component of the world market. This was particularly true in the period after 1973. While demand for steel in industrialized countries shrank at a rate of 2.9 per cent per year from 1973 to 1978, demand by developing countries increased at a rate of 8.9 per cent, [Kono, 1980:77]. Production by developing countries grew even more rapidly than it had grown between 1960 and 1973, and capacity grew more rapidly still [United States, CIA, 1979:3]. Latin America was a principal locus of Third World steel production. Latin America's output grew from 13 to 24 million tons between 1970 and 1978 (see Table II-2) and in 1980 Latin America accounted for almost 50 per cent of developing country capacity (see Table II-3). Despite the growth of their capacity, developing countries continued to increase their imports of steel throughout the period. In 1981 the total gap between developing countries' production and consumption was just under 45 million tons [UNIDO, 1982a:14-15]. Latin American demand provided the single most important market for United States exports. In 1980, Latin America accounted for 47 per cent of United States steel exports, importing about three times as much steel from the United States as it exported to the United States (see Table II-4).

Although Latin America has been more important as a market for United States steel producers than as a competitor, there has been a tendency to view the growth of steel capacity in Latin America and in the Third World in general as a threat to United States economic vitality. The National Foreign Assessment Center (a subdivision of the United States Central Intelligence Agency) concluded its analysis of the "burgeoning developing country steel industry" by saying, "The growth of developing country steelmaking capacity is adding to the already serious problems of the developed country steel industries" [United States, CIA, 1979:8].

If Third World steel making capacity is already seen as a threat, it is likely to become even more worrisome over the next ten years. If the steel making projects on the books as of the beginning of the 1980s are completed, Latin America's capacity will more than double by 1990, and overall developing country capacity will increase two and a half times (see Table II-3); [UNIDO, 1982a]. Even under the assumption that some projects will be dropped,

Table II-3. Steelmaking Capacity of Developing Countries: Projections to 1990. (in millions of Tons).

	1980 Capacity	1990 Capacity Low Growth[1]	1990 Capacity Expected Growth[2]
Latin America	35	63	82
Asia	34	56	76
Other Developing Countries	7	20	35
Total	76	139	193

Source: UNIDO, 1982c:34,38

[1]Assumes cancellation of projects currently planned.

[2]Assumes completion of projects currently planned.

Table II-4. Regional Distribution of U.S. Steel Imports and Exports - 1980 (Steel mill products in thousands of tons)

	Exports Percentage	Exports Amount[1]	Imports Percentage	Imports Amount[1]
Latin America	47.2	1,935	4.1	636
Asia (includes Japan)	20.8	853	46.3	7,161
Africa	6.1	205	2.8	434
Canada	11.6	476	15.3	2,372
Europe	10.7	439	26.4	4,092
Other	6.1	250	3.6	558
Total	100.0	4,100	100.0	15,500

Source: USITC, 1982a:1-24,25
U.S. Department of Commerce, 1982:153

1 Calculated by taking total amounts of exports and imports from United States Department of Commerce, 1982, and multiplying by percentage provided by USITC, 1982a.

Latin American and overall Third World capacity will still come close to doubling. Under a reasonable range of assumptions concerning Third World production and demand, developing countries will increase their need for exports and Latin America's net imports will remain about constant [UNIDO, 1982a:39,53; UNIDO, 1982b:97]. Should the difficult times of the last two or three years, 1980-82, continue, however, the development of both Latin American capacity and Latin American markets may be in jeopardy. One element in determining the future evolution of the Latin American steel industry will be the response of the United States to its own declining international competitiveness in steel.

2. Declining United States competitiveness

In the early 1930s the United States industry was not only dominant in terms of its size, it also had a very favourable cost structure. While United States wages were high, United States raw materials cost were low. The cost of coking coal in 1956 was less than half Japanese costs; the differential in iron ore costs were almost as great. For the rest of the 1950s and throughout the 1960s, international prices for coking coal and iron ore declined, while United States prices remained the same or rose, until by 1972 it was Japan and not the United States which had the raw materials cost advantage [Crandall, 1981:21].

Even more important in the erosion of the United States competitive position was the failure to modernize capacity during the 1950s and early 1960s when companies had the cash flow necessary to construct new capacity. To begin with, the United States built a much smaller amount of new capacity in proportion to existing capacity than did the Japanese or the Europeans. More seriously, the new capacity that was built was technologically outmoded. United States firms constructed 40 million tons of open hearth capacity during the 1950s when the overwhelming cost advantage of the basic oxygen process should have been clear. Even as late as 1963 only smaller United States firms had made a serious commitment to the basic oxygen process. The largest firms had no basic oxygen capacity at all [Adams and Dirlan, 1967:185,183]. The response of United States firms to other technological innovations, such as continuous casting, has been equally slow [see Volk, 1979].

Even though wages in Japan and other major steel producing countries have risen more rapidly than wages in the United States steel industry, the United States still has no advantage in terms of labour costs. Lack of technological change in the industry has meant that value added per worker has grown more slowly than in United States manufacturing overall. At the same time, the strength of labour organization in the steel industry has contributed to the more rapid wage increases than in other United States manufacturing industries. By 1977, steelworkers were producing only $2.60 of value added for each dollar of wages received, while the average United States manufacturing worker produced $3.90 for each dollar of wages received (see Table II-5). As long as they continue to work in aging, inefficient plants, United States steelworkers could only become competitive by drastically slashing their real wages, and since the companies for which they work have not directed profits toward productivity-enhancing innovations in the past, willingness of steelworkers to accept such a scarifice would seem very unlikely.

Without a major renovation of United States plant, United States steel will not be generally competitive on international markets. By 1976 Japanese production costs were about 70 per cent of United States production costs for most major product classes [Crandall, 1981:171-172]. There is little possibility for major renovations. With capital costs of a new greenfield facility estimated at almost $1000 per ton, and the capital costs of existing facilities having been largely written off, capital charges make production on new greenfield sites uneconomic. According to Crandall [1981:152], "The cost of producing steel in new plants in the United States would be higher than cost of production in most existing plants".

The negative future prospects of the industry should not be exaggerated. The most efficient United States steel mills in the Great Lakes Region are likely to remain competitive with foreign imports, even without substantial protection. Production in electric-furnace mini-mills in the Southeast is growing relatively rapidly. Even if plants in the Northeast and the Ohio River Valley are forced out of business, the overall reduction in United States steel capacity is unlikely to exceed 10 per cent [Crandall, 1981:146-147]. From the point of view of overall economic and social welfare, the decline of the United States steel industry that might result from

Table II-5. Wages and Value added in Steel and U.S. Manufacturing Overall 1960-1977

	Steel			All Manufacturing		
	(1) Value-added per production worker hour	(2) hourly wages (prod. worker)	Ratio (1)/(2)	(1) Value-added per production worker hour	(2) hourly wages (prod.worker)	Ratio (1)/(2)
1960	$8.23	$3.08	2.7	$ 6.80	$2.26	3.0
1970	$11.37	$4.22	2.7	$11.30	$3.35	3.4
1977	$22.49	$8.67	2.6	$21.90	$5.68	3.9

Source: U.S. Congress, OTA , 1981:55,59.

exposing it more fully to the forces of international competition does not seem catastrophic. From the point of view of those who live in the Monongahela and Mahoning valleys, and other affected areas, however, the decline of the steel industry is already a catastrophy in the absence of an industrial policy that might speak to their distress.

3. United States industrial policy in steel

In a recent study, Lawrence Franko [1981] has identified the characteristics of those industries most likely to successfully seek protection from international competition. In addition to noting the obvious characteristic of being at a competitive disadvantage internationally, he emphasizes the overall magnitude of employment in the industry and the extent to which the firms in the industry are not diversified, either geographically or in terms of product markets. On both counts the steel industry is a likely candidate for a successful protectionist campaign.

(1) Positions of firms and labour

Companies in the United States steel industry never became truly multinational. Among large United States firms they stand out in their lack of overseas manufacturing investments. Not only have they focused their attention on the domestic market, but within that market they developed very early on a relatively stable pattern of oligopolistic cooperation. U.S. Steel, the largest firm but by no means the lowest cost producer, provided "price leadership" and smaller, more efficient firms were able to earn substantial profits under its umbrella.

In contrast to the extensive state involvement in the steel industry that characterizes most countries, the United States government exercised little initiative with regard to the development of the industry. The Kennedy and Johnson Administrations tried to persuade the industry to abandon what they felt were unjustified price increases in the early 1960s, but there was no concerted attempt to increase the degree of technological change.

Some of the sharpest struggles in the history of the United States labour movement led to the creation of the United Steel Workers of America and the

USWA has remained one of the country's most powerful industrial unions despite the decline of the industry. During the period of United States dominance, steelworkers benefitted from the fact that the companies were confident of their ability to pass on wage increases to their customers. Even so, the industry witnessed several long and bitter strikes. The rise of import penetration during these strikes convinced management and the union that more cooperation was necessary. In 1973 an Experimental Negotiating Agreement (ENA) which limited the right to strike was accepted by the union in return for wage concessions from management. Under this agreement, steelworkers' wages continued to rise more rapidly than those of other manufacturing workers, despite the declining competitiveness of the industry (see Table II-5).

(ii) The protectionist response to international competition

The internal structure of the United States industry contained no dynamic that might have lead to major change. The major firms had worked out a modus vivendi among themselves and with their union, which involved little innovation, little price competition, and generous wage settlements. The government assumed no active role to promote adjustment policies, despite some concern on the part of Congress with the performance of the industry. Consequently, when the changes that were occurring in the industry internationally began to impinge on the United States market, the response was not an attempt to create a policy of positive adjustment but rather an attempt to insulate the industry from the pressure for change.

In 1968, hedging in preparation for a strike brought imports to an all time high of 18 million tons. The industry called for protection and the United States government responded by negotiating voluntary restraint agreements (VRAs) with Japan and the European Community. These remained in effect until 1975 and the tide of imports was stemmed. By 1977, after only one year without the umbrella of the VRAs, the industry was in trouble again. Plants started closing, one small company went bankrupt, and the president of the USWA claimed that 60,000 steelworkers had lost their jobs because of imports [New York Times, 7 October 1977:D8]. Corporate losses mounted and political pressure mounted with it. A "Steel Caucus" was formed in Congress

which included 25 per cent of the members of the House of Representatives and 20 per cent of the Senate.

The Carter Administration responded with a "Comprehensive Program for the Steel Industry", known as the "Solomon Plan" [United States Congress, 1978:3-38]. The "Comprehensive Plan" included proposals for loan guarantees from the Economic Development Administration (EDA) for companies trying to modernize, some assistance to affected communities, relaxation of legal impediments to mergers and to cooperation among companies on research and development, and a "rationalization" of environmental protection regulations. The Task Force that produced the plan remained convinced that the Government's response, "must avoid any direct government involvement in the industry's decision" [United States Congress, 1978:11]. Consequently, the keystone of the plan was increased protection.

The Plan introduced the Trigger Price Mechanism (TPM) as a means of protecting the domestic industry from "unfair competition" from abroad. The very stringent "anti-dumping" provision contained in the 1974 Trade Act was already in effect, but the TPM gave the steel industry special relief from the difficulties of enforcing this provision. Instead of requiring an investigation to determine whether a given foreign producer was selling at less than fair market value, the TPM allowed claims of dumping to be processed for any imports sold at below "the full costs of production including appropriate capital charges of steel mill products by the most efficient foreign producers (currently the Japanese steel industry)" [United States Congress, 1978:16]. The TPM was of dubious legality according to traditional international definitions of "dumping" [Schneider, 1983]. It also proved ineffective economically.

According to the Comprehensive Plan, the protection provided by the TPM, along with certain favourable changes in the tax laws, would provide the industry with the capital necessary to modernize and become more competitive internationally [United States Congress, 1978:24-27.] In hindsight, this was an unrealistic prediction. By the beginning of 1982, with United States steel firms operating at only 55 per cent capacity and on their way to even lower

levels, and the Administration unable to negotiate an agreement with the Europeans to limit exports, United States companies filed a record 110 anti-dumping and countervailing duty actions and the Government suspended the TPM response. The TPM did raise domestic steel prices while it was in effect, thus transferring resources from consumers to producers of steel. Crandall estimates the cost to consumers at about US$ 1 billion a year for 1978-79 and the number of jobs saved at 12,400 [Crandall, 1981:139]. As an industrial policy designed to help the steel industry adjust to changes in the international economy, it's effectiveness was quite limited.

4. Possible policy outcomes

There is little likelihood of any policy of positive adjustment for the steel industry being instituted in the short or medium term. Consequently, the most probable policy outcome is a continuation of what might be called "ad hoc" protectionism. Steel companies are likely to continue to accuse foreign producers of dumping and the United States government is likely to continue to try to negotiate export restraints with the Japanese and European governments. Whether any more stringent protection against steel imports is in the offing is less clear. The industry would probably like to impose quotas [see Fortune, 8 February 1982:47], and the possibility that Congress would support more extensive forms of protectionism cannot be excluded.

The possibility of alternative policies, as low as the probability of their implementation may be, should at least be noted. The case of the Campbell works in Youngstown, Ohio, serves as a useful illustration. When its conglomerate owner shut down the Campbell works in 1977, over 4,000 steelworkers were without work and the effects on the community were devastating. A community group, with the help of economist Gar Alperovitz, put together a proposal for reopening the plant as a community-owned corporation. They planned to modernize the plant and to produce from scrap rather than ore, a reasonable idea for a steel works located in the middle of the "scrap belt". The reopened plant would have been able to employ 3,600 workers. The workers would take stock in the company in lieu of incentive pay and agree to a number of changes in work rules, not an unreasonable bargain given that they would have considerable control over the operation of the

company. Worker concessions would have reduced labour costs by over 20 per cent [see Kotz, 1979].

In order to be implemented the Youngstown plan would have required a US$ 245 million loan guarantee from the Economic Development Administration. The executives of the major steel companies lobbied against the plan and support by union officials was limited in concern over its effects on collective bargaining. The EDA turned down the request for a loan guarantee and the idea was aborted. It remains, nonetheless, an example of how a more imaginative approach to restructuring might succeed in rescuing distressed communities and redirecting political pressure away from a focus on protectionism.

5. Implications for Latin American manufacturing

Since United States companies have not invested in steel making facilities in Latin America, questions of investment policy and TNC behaviour are not central issues in the steel industry. The effects of United States industrial policy are felt primarily through its impact on trade, more specifically through the intensification of United States protectionist efforts in the steel industry. Brazil, which produces over 50 per cent of Latin America's steel (see Table II-2) and has recently expanded its steel exports to the United States, has been the major target, but other countries in the region which for different reasons may have long-run comparative advantage in steel production, are likely to see future implications in Brazil's current problems.

(i) The maturation of the Latin American steel industry

The growth of steel making capacity in Latin America and the Third World in general has been noted. It is equally important to note that the steel capacity being created in Latin America and the Third World generally is technologically competitive with existing capacity in the United States. Crandall estimates that costs of production at a new greenfield site in Latin America are lower than those of a similar facility in the United States (see Table II-6). Obviously, existing United States plants benefit from the high capital charges forced on new facilities by current capital costs, and may have lower costs than new Latin American facilities (though not necessarily new Asian facilities). By the same token, however, once new plants are built,

marginal rather than average costs are likely to be the basis for pricing, especially in times of slack demand.

Third World countries have benefitted from the global dispersion of steel-making technology and they are likely to benefit even further as additional new capacity comes on stream. Third World countries are pushing ahead with new direct reduction processes of steel making while industrialized countries are not. In Brazil the percentage of steel production using continuous casting was already one and a half times the percentage for the United States industry as of 1979 [UNIDO, 1982b:12-17, 124]. When the technological evolution of Latin American steel industries is combined with certain raw materials advantages, for example, Brazil's massive supply of high quality iron ore or Mexico's supplies of energy, the possibility of these countries having a long-run comparative advantage in the export of steel is hard to deny. In the short run, however, the development of the steel industries in these countries has been severely threatened by problems in both international and domestic markets. These problems are perhaps best exemplified by the case of Brazil.

(ii) Current difficulties in the Latin American steel industry: The case of Brazil

In 1981 Brazilian steel production, which had grown exuberantly up to that time, dropped by 14 per cent relative to 1980. Brazil, which had traditionally lacked local capacity sufficient to meet domestic demand, suddenly had almost 5 million tons of excess capacity. In 1982 production declined even more rapidly. Several of Brazil's most ambitious steel projects were in serious jeopardy. Aconimas, projected to produce 2 million tons of steel a year and supply the construction industry with structural steel previously unavailable on the local market, threatened to become "the most expensive scrap yard in the world" [Latin America Weekly Report, 5 November 1982:11]. Plagued by delays and difficulties in raising capital, the project was becoming hard to justify. Tuberao, Usiminas, and other large projects were also experiencing difficulties. Vibasa, the country's newest producer of speciality steel, has been operating at less than 50 per cent capacity since it came on stream in 1980.

Table II-6. Cost Comparison for New Steel Facilities in U.S. & Latin America 1978 (US $ per finished ton, flat rolled carbon steel)

	U.S.	Latin America
Labor	$88	$35
Raw Materials & Miscellaneous	$176	$176
Capital Charges	$161	$200
Total	$425	$411
Assumptions		
Man-hours/ton	6	10
Hourly wage	$14.69	$3.50
Construction cost/ton	$937.50	$1,000.00
Capital Charge	0.172	0.20

Source: Crandall, 1981:91.

The problems of Brazil's steel industry are principally due to the collapse of domestic demand caused by the deep recession that has plagued the industrial sector for the past two years. There is, however, an international component to the problem. When Brazil formulated its plans for expanding local capacity to 28 million tons a year by 1985 it was counting on rapid growth of domestic demand, but it was also counting on eventually exporting 10 million tons of steel a year. When domestic demand fell in 1980 and 1981, Brazil's need to export increased significantly. At this point, however, it ran directly into the problem of increasing United States protectionism.

Between 1979 and 1980, Brazil's exports of carbon steel plate to the United States more than doubled. Its exports of stainless steel bar doubled between 1979 and 1981 and its exports of stainless steel wire rod went from nothing to 28 per cent of total Brazilian production (see Table II-7). In 1981 the United States market absorbed 68 per cent of all Brazilian exports of carbon steel plate, 79 per cent of all Brazilian exports of stainless steel wire rod, and about half of all Brazilian exports of stainless steel bar. The next year, the United States International Trade Commission (USITC) and the United States Department of Commerce, acting on complaints from domestic producers, investigated these imports and the USITC found "reasonable indication of material injury or threat thereof" [USITC, 1982a:22; 1982b:20]. Brazilian steel producers were found to be the beneficiaries of "countervailable subsidies", principally rebates for exports of the Industrial Products Tax (IPI) [USITC, 1982b:A-5]. Steel had become a central issue in the longstanding dispute between the United States and Brazil over the legitmacy of Brazil's export incentives in general and the rebates of the IPI in particular, and Brazil's attempts to salvage the development of its steel industry on the basis of an export-oriented strategy were clearly in difficulty.

The eventual outcome of this confrontation is still unclear. Brazil has promised to phase out IPI export rebates as a general practice, but intends to allow rebates in certain specific cases (Latin America Weekly Report, 24, September 1982:8). It also intends to retain the substantial export subsidies organized under the BEFIEX programme (Business Latin America, 15 September 1982). If these subsidies are in fact continued, it remains to be seen whether the United States will impose countervailing duties, as it has done in

Table II-7. Growth of Selected Brazilian Steel Exports to the United States ('000s of short tons)

A. Carbon Steel Plate	1979	1980
Brazilian Production	1,500	1,800
Exports: To U.S.	177	389
To EEC	19	46
Other	128	140
Total Exports	324	575
Exports to U.S. as % of Braz.Prod.	12%	22%

B. Stainless Steel Bar	1979	1980	1981
Brazilian Production	16.7	28.9	27.4
Exports: To U.S.	1.4	2.0	2.9
To EEC	4.1	3.9	2.9
Other	.9	n.a.	n.a.
Exports to U.S. as % of Braz. Prod.	8%	7%	11%

C. Stainless Steel Wire Rod	1979	1980	1981
Brazilian Production	3.2	4.1	5.3
Exports : To U.S.	0.0	0.02	1.5
To EEC	0.6	0.6	0.4
Other	0.1	0.2	0.0
Total Exports	0.7	0.82	1.9
Exports to U.S. as % of Braz. Prod.	0%	0%	28%

SOURCES: A. USITC, 1982a:II-23
B & C. USITC, 1982b:A-42

other cases. If the incentives are withdrawn, perhaps in the context of a "maxi-devaluation" as in 1979, it is possible that Brazilian steel might still be able to penetrate the United States market, in which case the United States response again remains in question.

Whatever the eventual outcome, one thing is clear for Brazil as well as for other would-be Latin American steel exporters: if they try to link the development of their steel industries to the possibility of exporting to the North American market, they will not face a welcome reception as long as the international market for steel and United States policy toward the steel industry continue on their current courses.

B. PETROCHEMICALS: RESPONSES TO THE CHANGING INTERNATIONAL DIVISION OF LABOUR IN A DYNAMIC INDUSTRY

Petrochemicals stand in sharp contrast to steel, both in terms of the dynamism of the industry worldwide and in terms of the position of the United States within the industry. Growth of demand for most petrochemicals was over 10 per cent per year worldwide between 1975 and 1979 and growth of demand for thermoplastic resins was even more rapid. United States exports were also growing and the magnitude of exports continued to be several times greater than that of imports. In other respects, however, there are important similarities between steel and petrochemicals. In petrochemicals, as in steel, the growth of demand, production and capacity have been most rapid in developing countries and are likely to continue to be in the future. United States cost advantages in petrochemicals appear to be eroding, as they did in steel. In addition, the early 1980s have seen problems of overcapacity beginning to emerge in certain sectors of the petrochemical industry. It would be an exaggeration to suggest that the petrochemical industry of the 1990s will resemble the steel industry of the 1970s. Continued product innovation, especially downstream, is likely to keep the industry dynamic for some time. There is also a fundamental difference in the organization of the industry which is not likely to be erased over time. Unlike steel, petrochemicals is dominated by firms, the major oil and chemical multinationals, that are preeminently global in their interests and strategies.

1. The current and future United States position in petrochemicals

(i) Growth of the world market

Petrochemicals has been the fastest growing segment of the chemical industry which in turn has been one of the most dynamic sectors in the economies of the industrialized nations since World War II. World exports have grown even faster than the industry overall. The volume of world plastics exports, for example, increased 76-fold between 1950 and 1970 [UNIDO, 1981b:13]. These rapid rates of growth were based on a combination of relatively high rates of GNP growth in industrialized countries, liberalization of international trade, cost-cutting technological developments in the industry and falling real prices for oil. The growth rates of the 1950s and 1960s were not achieved in the 1970s and will not be achieved in the 1980s. Nonetheless, as Table II-8 indicates, the growth of demand over the course of the 1980s is still likely to be much more rapid than projected GNP growth rates in industrialized countries.

As in the case of steel, the growth of the petrochemical industry has been, over the last decade, fastest in Third World countries. As can be seen in Table II-8 for the case of ethylene, developing country growth rates for basic petrochemical demand were more than double the rates of growth in industrialized countries. This has meant that, despite rapid growth of petrochemical capacity in the Third World, developing countries have provided a market for exports that is growing more rapidly than the domestic markets of industrialized countries. In the case of thermoplastic resins, for example, developing country imports are expected to more than double by 1984 over 1975 levels despite a fivefold increase in domestic capacity [UNIDO, 1981:70].

Also reminiscent of the case of steel is the extent to which the failure of the world economy to regain momentum in the early 1980s has created problems of overcapacity and falling demand in the industrialized countries during the last two years. In the case of synthetic fibres, for example, Western European firms reached an agreement in the fall of 1982 to cut back production by 17 per cent (550,000 tons) in order to compensate for dropping sales. This agreement replaced an earlier agreement, made in 1980, which decreased production by 440,000 tons [Wall Street Journal, 21 October 1982].

While synthetic fibres are the least dynamic segment of the petrochemical industry, analogous problems have occurred in other branches of the industry.

(ii) Growth of the industry in the United States

The United States is the largest single market for chemicals in the world, with overall sales for chemicals reaching US$ 150 billion in 1979 [Isaak, 1981:5]. Of this, petrochemicals account for over 40 per cent and industries dependent on petrochemicals (e.g., pharmaceuticals, paints, fertilizers) account for an almost equal amount [United States Department of Commerce, 1982:97]. In recent years, however, the rate of growth of the domestic industry has begun to decline. United States plastic consumption grew at a rate of only 4 per cent per year between 1976 and 1980 and actually declined by 13 per cent between 1979 and 1980 [USITC, 1981c:4-5]. Synthetic rubber consumption, hard hit by the problems of the auto industry, declined by 17 per cent between 1976 and 1980. As domestic demand has weakened, exports have become more important to the industry.

Although the United States petrochemical industry exports less than 20 per cent of its output, the proportion of exports has grown during the 1970s as the growth of exports has substantially exceeded the growth of the domestic industry. According to the United States Department of Commerce [1982:99], "The value of United States petrochemical exports increased from US$ 2.75 billion in 1973 to US$ 11.80 billion in 1980 - a growth rate of 23.6 per cent per year." Imports are a fraction of exports and have generally amounted to less than three per cent of domestic consumption.

Exports to Third World countries play an increasing role in the overall growth of exports. As Table II-9 indicates, while United States exports of plastics to Mexico and three Asian developing countries doubled and quadrupled respectively between 1976 and 1980, the volume of exports to principal industrialized country markets increased by only 16 per cent. In the case of synthetic elastomers, United States exports to its principal developing country markets (Brazil, Mexico and Venezuela) also grew more rapidly than to its principal industrialized country markets, though the differences in this case were much smaller. [USITC, 1981b:21]

Table II-8. Growth of World Petrochemical Demand 1975-1990 (Selected Major Products)

	Ethylene	5 Thermoplastic Resins	3 Synthetic Fibers	2 Synthetic Rubbers
Demand 1975 (millions of tons)				
Industrialized Countries	23.35	21.32	5.51	4.23
Developing Countries	1.15	3.28	1.56	0.54
World	24.50	24.60	7.07	4.77
Growth 1975-1979 (in %/yr.)				
Industrialized	10.4	12.6	8.1	6.6
Developing	24.0	19.6	11.9	14.1
World	11.2	13.6	9.0	7.5
Growth 1979-1984 (in %/yr.)				
Industrialized	5.8	4.8	3.0	3.9
Developing	17.6	11.7	7.4	8.7
World	6.2	6.1	4.1	5.8
Growth 1984-1990 (in %/yr.)				
Industrialized	4.3	5.0	3.2	3.1
Developing	14.9	11.1	6.4	5.9
World	6.0	6.4	3.5	3.6
Demand 1990 (millions of tons)				
Industrialized	56.50	58.0	10.02	7.97
Developing	13.95	22.0	5.1	1.98
World	70.45	80.0	15.12	9.95

Source: UNIDO, 1981b: 50 (Table I.11), 51 (Table I-13), 51 (Table I.15) 53 (Table I.17), 54 (Table I-18), 55 (Table I-20), 59 (Table I-23)

Notes: 5 Thermoplastic Resins = LDPE, HDPE, Polypropylene, PVC, Polystyrene
3 Synthetic Fibers = Acrylic, Polyamide, Polyester
2 Synthetic Rubbers = SBR, Polybutadiene

World = industrialized + developing, figures for demand differ slightly from figures for production given in UNIDO, 1981b:68 (Table I.32).

As promising as the growth of United States exports might appear, they are in fact disappointing relative to the overall growth of world exports of petrochemicals. In the case of plastics, for example, United States shares of world export markets decreased from 27.3 per cent in 1962 to 16.8 per cent in 1970 and to 11.8 per cent in 1977 [Aho and Rosen, 1980:Table 10]. In terms of a "Constant Market Share" analysis, United States actual exports of plastics were only 66 per cent of predicted exports in the 1962-69 period and only 71 per cent of predicted exports in the 1970-77 period. This performance raises questions as to whether United States competitiveness in petrochemicals is declining in the same way that United States competitiveness in steel has already declined.

(iii) The future of United States competitiveness

In contrast to United States steel companies, United States firms engaged in the production of petrochemicals have been technologically innovative, developing new products and improving productive processes. Union Carbide's role in the recent development of linear low density polyethylene is a good example. The contribution of United States engineering firms to the development of world scale naptha crackers is another [UNIDO, 1981b:261]. In the past, United States firms have also benefitted from low-priced hydrocarbons. United States government price controls on oil and gas kept the cost of feedstocks and energy for United States producers well below those of the European and Japanese. Given that feedstocks and energy account for the majority of the total production costs of basic and intermediate petrochemicals, this advantage was considerable. So much so that the EEC lodged a formal complaint with the United States government over the unfair cost advantage of United States producers [United States Department of Commerce, 1982:100]. This competitive advantage is, however, in the process of disappearing:

> Decontrol of petroleum prices has already eliminated an earlier cost advantage of the United States petrochemical industry. Projected deregulation of natural gas prices will lead to substantial increases in the prices of gas and of natural gas liquids and to higher petrochemical costs [United States Department of Commerce, 1982:101].

Table II-9. Growth of U.S. Exports of Plastics and Synthetic Elastomers to Third World Markets

Exports of Synthetic Resins and Plastics Materials (millions of lbs.)					
	1976		1980		% increase
Largest 8 Markets	amount	%	amount	%	1976-80
Mexico	234	8	547	10	134
3 other Developing Countries*	201	7	840	16	318
4 Industrialized	1,014	35	1,172	22	16
Smaller Markets (Developing country and industrialized)	1,463	50	2,785	52	90
Total	2,912	100	5,344	100	83

* Hongkong, Indonesia and the People's Republic of China

Source: USITC, 1981b:36 (Table 19).

As new entrants begin to come on stream in the oil-producing countries in the 1980s, the traditional United States cost advantage in feedstocks and energy will be eroded.

2. The role of new entrants in basic petrochemicals

Capacity in the industrialized countries will continue to grow, with the possible exception of Japan which severely curtailed the growth of its petrochemical industry after 1973 and may even shrink some of its basic petrochemical capacity in the future. Growth in the industrialized countries however, will consist, at the maximum, of doubling capacity over the next decade [UNIDO, 1981b:84]. Capacity in the Third World on the other hand, will increase by at least four times, and probably five times by 1990 (relative to 1979 levels).

(i) The rise of developing country entrants

Prior to the late 1960s there was virtually no basic petrochemical capacity in developing countries. By the late 1970s several of the "Newly Industrializing Countries" (NICs) of Latin America and Asia had taken important initiatives to develop their own petrochemical industries. By the late 1980s developing country capacity will have quadrupled in olefins, more than tripled in aromatics and grown at a similar rate in downstream products. As table II-10 shows, current developing country petrochemical capacity is not only concentrated, it also tends to be located not in oil-producing countries but in NICs whose primary interest lies in import substitution. Level of industrialization and ability to absorb technologically sophisticated projects rather than raw material availability seem to have been most important in determining the first wave of growth in developing country petrochemical capacity. In Latin America, for example, Brazil dominated the industry while Venezuela was only a marginal producer.

The projections shown in Table II-10 suggest that petrochemical development in the 1980s will follow a different logic. Growth will be more closely tied to the presence of hydrocarbon reserves, especially growth of capacity to produce the basic petrochemical building blocks (olefins and

aromatics). Production of olefins in the Middle East will increase 20 times over in the space of eight years. Mexico rather than Brazil will come to dominate the production of olefins and aromatics in Latin America. These developments reflect the fact that feedstock and energy costs have dramatically increased their share of total production costs, enabling oil-producing countries to become cost competitive even though their construction costs (the other most important element in the overall cost of producing petrochemicals) are much higher than those of more industrialized countries.

The shift in the location of Third World petrochemical operations implies that future capacity is more likely to be export oriented. The plants being constructed in the Middle East are clearly designed for export to the industrialized countries [Isaak, 1981:50-51; UNIDO, 1981b:72]. New capacity in Latin America is less likely to be export oriented. But even in the case of Brazil, where most capacity was clearly built to satisfy domestic demand, certain projects have been proposed on the grounds that they will export their output and thereby help resolve balance-of-payments problems (see discussion of Dow Chemical Project, Evans, 1981). In the case of Mexico, export is a much more likely possibility, especially if domestic demand is not growing as rapidly as expected and if oil exports prove inadequate to solve foreign exchange problems. This raises, of course, the question of the likely reaction to developing country exports on the part of the industrialized countries, a question whose answer is tied in part to the role of TNCs in the development of Third World petrochemical capacity.

(ii) TNC involvement in the expansion of developing countries' petrochemical capacity

Paralleling the shift of petrochemical capacity to countries with hydrocarbon reserves has been the determined downstream movement of the major oil companies into petrochemicals. Major oil companies now control between 40 and 60 per cent of the basic petrochemical capacity of the EEC and have substantially extended their control over thermoplastic resins and certain intermediates. In the United States, major petroleum companies increased their control from 43 per cent of ethylene production in 1976 to 54 per cent

Table II-10. Growth of Developing Country Capacity in Basic Petrochemicals & Thermoplastic Resins 1979-1987
(in 000's of metric tons/yr.)

	Olefins			Aromatics			Thermoplastic Resins	
	1979	1984	1987	1979	1984	1987	1979	1984
atin America								
Brazil	1,320	2,100	2,110	430	620	620	1,026	1,601
Mexico	740	2,040	2,640	330	1,130	1,430	418	1,048
Argentina	290	390	910	295	295	355	143	502
Venezuela	240	240	590	0	0	150	137	251
Other	90	310	1,120	100	100	750	75	155
otal	2,680	5,090	7,370	1,155	2,145	3,305	1,799	3,557
iddle East	1[illegible]	975	3,280	0	350	1,240	77	787
sia	2,475	5,240	8,960	1,280	2,450	3,810	2,710	5,164
frica	120	595	1,015	0	60	60	287	578
OTAL	5,440	11,900	20,625	2,435	5,005	8,415	4,873	10,085

OTES: olefins = ethylene, propylene, butadiene
aromatics = para-xylene, ortho-xylene and benzene
thermoplastic resins = LDPE, HDPE, Polypropylene, PVC, Polystyrene

reliable estimates for thermoplastic resins are not available for a large number of countries for 1987.

Major producers in the Middle East include: Iraq, Kuwait, Qatar, Saudi Arabia, Turkey, Iran.
" " " Asia include: India, Indonesia, Republic of Korea, Singapore, People's Republic of China
" " " Africa include: Nigeria, Algeria, Egypt, Libya

OURCE: UNIDO, 1981b:41-45 (Tables 1.4 - 1.6B).

in 1983 and also increased their control over thermoplastic resins [UNIDO, 1981b:295-297, 305]. Oil TNCs have now joined the traditional chemical TNCs (Bayer, ICI, Dupont, etc.) as dominant actors in the control of existing petrochemical capacity. The same companies are doing their best to position themselves to take advantage of the growth of capacity in the developing countries.

Perhaps the most important initiative of United States TNCs has been in Saudi Arabia. United States TNCs are optimally positioned in relation to the most likely source of developing countries' petrochemical exports to the industrialized countries. All the Saudi projects are 50/50 joint ventures with the Saudi Basic Industries Corporation (SABIC). At Jubail, Dow (through Dow Chemical Europe) is partner in an olefin complex that will produce half a million tons of ethylene a year. Shell Oil's United States subsidiary (Shell-Pecten) participates in an even larger olefin project (656,000 tons of ethylene/year). Exxon is SABIC's partner in a large (260,000 tons per year) LDPE project at the same location and Celanese is involved in a massive (600,000 tons per year) methanol project. At Yanbu, Mobil is the country's partner in another olefin complex (450,000 tons per year) of ethylene as well as an export-oriented refinery. In all these cases, one of the TNC partners' major contribution is their counted-on ability to place the production in international markets [see Isaak, 1981:41-46].

Despite their heavy involvement in Latin America, United States TNCs have not predominated in the development of Latin American petrochemical complexes to the same degree that they have in Saudi Arabia. Domestic control over local productive capabilities and the "de-packaging" of technology have had an important place among the goals of Latin American countries trying to develop new petrochemical capacity. In Brazil and Mexico, sites of the most extensive petrochemical developments, the state-owned oil companies which control the evolution of the industry restricted the participation of TNCs and bargained hard over the conditions of their entry. The terms laid down for participation have often made United States TNCs reluctant to enter, even in ventures for which TNC participation is solicited.

In Brazil's Camacari petrochemical complex, one of the largest fully integrated complexes in the world at the time of its construction, the State

took control of the first generation (later sharing control with downstream companies) and the downstream companies were split on a "tripod" formula--one third state ownership, one third local capital and one third TNCs [see Evans, 1979]. Careful attention was paid to the issue of acquiring access to the technology involved in the operation of the plants being set up. Few United States TNCs opted to become involved while Japanese TNCs used the opportunity to acquire a place in the Brazilian market. In the most recent Brazilian complex even more emphasis was placed on the "de-packaging" of technology [Sercovich, 1980]. Technip/KTI obtained the contract to construct the naptha cracker on the basis of an agreement that not only provided technicans full access to the design process but also envisaged the possibility of Brazil one day being able to construct naptha crackers in third countries [Evans, 1981].

A look at the new Mexican petrochemical complexes also makes the differences between the Latin American and Middle Eastern situations clear. They are wholly owned by Petroleos Mexicanos (PEMEX). Among the engineering and contracting firms involved in their construction, one does not find the familiar United States firms that are so central to the Saudi projects--Fluor, Bechtel, Badger, Lummus and Foster Wheeler. Instead one finds the contracting controlled by PEMEX itself and the engineering done by firms like Befete Industrial Disenos y Projectos SA, Instituto Mexicano de Petroleo, and Procesos de Mexico SA [Hydrocarbon Processing, 1982: 19-20, 37-38].

United States TNCs are centrally involved in the development of the petrochemical industry in developing countries, including its development in Latin America. But, in the major complexes producing basic petrochemicals and major thermoplastic resins, the United States TNCs are much more thoroughly wedded to the developments in the Arabian peninsula than they are to developments in Latin America. Whether this will make a difference in terms of the evolution of United States policy remains to be seen, but it is a fact which cannot be ignored.

3. Technological change and product specialization

The era of major technological breakthroughs in basic petrochemicals is probably drawing to a close. The technology necessary to produce the basic petrochemical building blocks is no longer under the exclusive proprietary

control of producing companies, but may be obtained from a variety of engineering firms worldwide. Consequently, basic petrochemicals as well as the major thermoplastic resins, synthetic fibres and synthetic elastomers have taken on the character of commodities, products in which monopoly power is harder to obtain and requires, to an increasing degree, control over marketing and distribution as well as production if it is to be obtained at all. The major oil companies can still hope to exercise some degree of monopoly power based on their control over feedstocks and energy sources, but chemical companies, even the chemical subsidiaries of the major oil companies, are tending toward an increasing focus downstream where exclusive proprietary positions can be secured in specialized products and the possibility of strong monopoly position is easier to envisage. Rather than specializing in fertilizers, for example, TNCs are beginning to focus more of their efforts on agricultural chemicals.

The implications of this evolution for the international division of labour are not entirely clear. A "product cycle" model of the international division of labour might well develop in petrochemicals. Developing countries with hydrocarbon reserves would export those basic commodity petrochemicals for which production technologies are widely diffused while industrial countries focused on the export of fine chemicals. Such a model depends, of course, on a relatively high rate of product innovation in the industry. It also leaves undefined the position of countries like Brazil and Mexico which can realistically aspire to local production of more sophisticated chemical products. It also depends on the industrial policies of the industrialized countries.

4. The sources and shape of future United States industrial policy

The forces shaping United States industrial policy in petrochemicals are quite different from those affecting policy in steel. Petrochemical plants are the epitomy of capital-intensive process technology and the position of labour in the industry is very different than in steel. As has already been pointed out, the firms involved are also very different. They are, first of all, intensely multinational. They are also, as Franko [1981] points out, highly diversified and therefore less likely to see protection of markets for

particular products as critical to their survival. Franko's analysis of actions to restrict imports in the EEC bears out the differences. Of 175 actions taken from 1974 to 1978, 75 involved the steel industry and only 9 involved chemicals and fertilizers [Franko, 1981:494]. In the United States, even more clearly then in the EEC, there is a strong contrast between steel and petrochemicals as far as the issue of protectionism is concerned, both on the part of capital and on the part of labour.

(i) The position of labour in petrochemicals

Wages and salaries in petrochemical production generally account for no more than 10 per cent, and sometimes as little as 2 per cent of the total production costs [UNIDO, 198b:90]. According to the United States Department The implications of this evolution for the international division of labour are not entirely clear. A "product cycle" model of the international division of labour might well develop in petrochemicals. Developing countries with hydrocarbon reserves would export those basic commodity petrochemicals for of Commerce [1982:97], production workers in the industry in the United States in 1978 produced US$ 6.77 of value added for every dollar they received in wages (as compared to US$ 3.90 for United States manufacturing overall and US$ 2.60 for steelworkers - see Table II-5). Given the heavy weight of fixed costs in the industry, and the critical importance of avoiding "downtime" it is the degree to which workers effectively fulfill monitoring and maintenance responsibilities rather than wage rates that are critical to profitablity. Because the industry is so capital intensive, the absolute number of workers involved is relatively small. In 1978 the value of shipments for the steel and petrochemical industries was about the same, but there were over 400,000 workers involved in steel production and only 200,000 involved in petrochemicals. Finally, the regional distribution of the industry within the United States is very different. Instead of being located primarily in the North Central and Northeastern parts of the country, hard hit by the recession of a variety of traditional industries, petrochemical plants are more likely to be found on the Gulf Coast, where the regional economy overall has benefitted rather than suffered from rising energy prices.

This is not to say that workers in the petrochemical industry are immune from the general downturn in demand for industrial products. Employment in

the plastics industry declined by 10 per cent between 1976 and 1980 [USITC, 1981c:1]. Even if this distress were to get worse, however, low ratios of imports to domestic consumption and the high ratios of exports to imports in these industries make it unlikely that it would be translated into demands for insulation from international markets.

(ii) The policy preferences of United States firms

Since firms involved in the petrochemical industry are diverse and characterized by complex corporate strategies, prediction of their policy preferences is of necessity a speculative venture. However, some of the considerations that are likely to go into shaping firm preferences can be outlined and their possible implications discussed.

First of all, the degree of oligopolistic control which prevades even the markets for commodity petrochemicals must be recognized. Concentration is lower in the United States than in the EEC (where 4 to 8 firms control 100 per cent of ethylene supplies in the Netherlands, the United Kingdom, Italy and France). But, even in the United States the top eight firms control 66 per cent of supplies of ethylene. Further downstream, control, based on exclusive product or process technology, may be even tighter, depending on the individual product. Given the high proportion of fixed costs in the industry and the consequently high penalties for operating at low levels of capacity, firms must place a premium on avoiding "cutthroat" competition, particularly in commodity petrochemicals where product differentiation is diffcult. The firms' strategies are not difficult to understand, what is more complex is trying to decipher their implications for firm attitudes toward industrial policy in general and more specifically toward policies which might affect the fortunes of developing country producers.

On the one hand, TNCs try to avoid the dispersion of technology and production capacity to producers who might act as "spoilers" in the market. On the other hand, given the difficulty of preventing the dispersion of technology and productive capacity in the commodity petrochemicals where non-producers (engineering and consulting firms) already command the necessary technologies and are anxious to get a return on their knowledge by

constructing new plants, participation in the development of new Third World productive capacity would seem to be the best way of preserving "order" in the market, particularly if the new capacity is in locations that would seem to have a long-run cost advantage. This would seem to be the strategy in the Saudi Arabian case.

The major question arises in the case of possible exports back into the United States, especially if the eventual results of such exports might be to force firms to write off some of their older, less efficient United States capacity. This becomes even more sensitive in cases, like Mexico, in which the foreign capacity involved is not controlled (even jointly) by the United States TNCs. If United States TNCs were to decide that increased access to the United States market by foreign-controlled industries was detrimental to their long-term interests, United States industrial policy in petrochemicals could move in the same negative directions already traveled by United States industrial policy in steel.

(iii) Current and future United States policy

The most important "industrial policy" to data as far as the petrochemicals industry is concerned has probably been the control of oil and gas prices. Abandonment of these controls makes the United States industry more vulnerable to international competition. If demand for major intermediates and final products continues to stagnate, pressure for tariff protection might increase. Entry of basic petrochemicals is now free [UNIDO, 1981b:186] but since transport of the highest volume basics (ethylene and proplene) requires expensive cryogenic facilities, the tariffs on intermediates are really more crucial. The effective rate of protection on major thermoplastic resins varied in 1980 between 19 and 28 per cent [UNIDO, 1981b:190], already a substantial barrier for potential Third World exporters to face. There is then a foundation on which an industrial policy oriented toward retarding changes in the international division of labour could be built. Whether such a policy will be attempted remains to be seen, but a policy aimed at cutting off the possibility of exports to the United States market would be a severe blow to the long-run development of Third World petrochemical industries.

A related issue on which United States policy could impede the development of the Latin American industry is the question of "counter-trade" or "buy-back" agreements. Such agreements have already been important in the development of the petrochemical industry in Eastern Europe and might be useful to the development of the Latin American industry in the future if the problems with international financing, which currently prevail in the region, persist. The United States currently considers such arrangements as tending toward discriminatory practices and therefore as possibly contrary to GATT [United States Department of Labor, 1980:V-45]. A hardening of this position could make a potentially useful strategy more difficult for Latin Americans to employ, although it would probably still be possible to work out such arrangements with other industrialized countries.

A final area in which United States policy might affect the development of the Latin American industry is technology. Increased government support for research and development in the industry might actually work to the advantage of Latin American producers since it would idealy have the effect of speeding up the product cycle and lessening the dependence of United States producers on standard products in which Latin American industries are likely to compete. On the other hand, heightened United States opposition to Latin American attempts to limit entry to firms which are willing to share equity and technology could be a problem for Latin American industrial plans, especially if the United States attempted to make relaxation of these restrictions a condition for access to international financing or linked the issue to trade and tariff questions.

5 Implications for petrochemicals industries in Latin America

The country whose future petrochemical industry is most likely to be affected by United States industrial policy is Mexico. Mexico is not only likely to dominate the region in this industry (see Table II-10), it is also the country with the greatest prospect of exporting petrochemicals to the United States market, both because of its locational advantages as far as transportation costs are concerned and because of the prospective cost structure of its production.

According to UNIDO calculations, Mexico suffers a 25 per cent "locational" disadvantage as far as capital costs are concerned [UNIDO, 1981b:104], that is costs per ton of output of installing new capacity in Mexico are calculated to be about 25 per cent higher than the costs of installing similar capacity on the United States Gulf Coast. In compensation, feedstock costs for Mexican producers may be as little as 25 per cent of the feedstock costs faced by United States producers (as in the case of making ethylene from ethane) [UNIDO, 1981b:14]. Consequently, for a number of basic and intermediate products, Mexican production costs are lower than United States production costs. In the case of Methanol, for example, Mexican production costs are about half of United States production costs [UNIDO, 1981b:142]. In the future, these differences are likely to widen as United States feedstock costs are pushed up by the decontrol of natural gas prices and Mexico's relative disadvantage in terms of capital costs diminishes. Mexico's locational disadvantage in construction costs is projected to be only about 18 per cent by 1985.

The implications of these cost differentials are explored for the case of thermoplastic resins in tables II-11 and II-12. As is clear from Table II-11, Mexican production costs are already below both United States production costs and United States market prices for most thermoplastic resins. If PEMEX were willing to forego a 25 per cent ROI in order to increase foreign exchange earnings, Mexican thermoplastics could become even more cost competitive. Mexican production is likely to become even more competitive by 1985.

Looking at Table II-12, it is equally clear why Mexican thermoplastics will constitute no competitive threat to the United States domestic market during the first half of the 1980s. Mexican capacity is small even in relation to current imports from the United States. Barring a catastrophic drop in demand within Mexico itself, new capacity will be fully engaged in trying to fill domestic demand. United States producers may face the loss of an export market, but this is so small in relation to the United States domestic market that variations in the rate of growth of the domestic market will be much more important in determining the fortunes of United States domestic producers.

Table II-12 also makes clear the tremendous potential importance of United

Table II-11. Mexican Competitiveness in Major Thermoplastic Resins
(US $/ton - 1980)

	U.S. Production Costs	U.S. Market Price	Mexico Production Costs
HDPE	1,061	918	988
LDPE	979	1,030	958
PP	986	1,040	733
PS	1,086	1,010	911
PVC	1,090	761	1,497

Based on 25% ROI, 85% load factor.
Source: UNIDO, 1981b:142.

Table II-12. Mexican Capacity and the U.S. Thermoplastics Market
('000s of tons)

	U.S. Consumption 1980	U.S. Imports 1980	U.S. Exports to Mexico 1980	Mexican Capacity 1984
HDPE	4,097	104	97	200
LDPE	5,591	24	220	340
PP	2,537	3	163	100
PS	4,995	7	n.a.	148
PVC	5,072	57	n.a.	260

Source: USITC, 1981b: various tables.
UNIDO, 1981b: 41-45 (for Mexican capacity).

States policies with regard to the longer-term future of Mexican producers. If Mexican producers were allowed access to the United States domestic market, their potential for expansion, quite independently of the growth of the Mexican market, would be virtually unlimited. Since Mexican capital costs are about one sixth less than those of plants constructed in the Middle East and since Mexico would have the advantage of lower transportation costs, it could even compete with potential exports from the Middle East [see UNIDO, 1981b:104, 153]. Exports of basic and intermediate petrochemicals could provide Mexico with a way of increasing the local value added derived from its hydrocarbon reserves while at the same time enhancing the technological level of its manufacturing sector. The development of an export-oriented petrochemical sector would be even more attractive if it could be financed on the basis of counter-trade or buy-back agreements.

The likelihood of this scenario depends to a great extent on a United States industrial policy aimed at shifting United States production away from commodity petrochemicals toward more technologically-advanced downstream products. If, instead, United States policy in the late 1980s and 1990s were to be oriented toward trying to preserve the return on aging domestic naptha crackers by insulating their output from international competition, or if it were to be aimed at providing special access to the United States market for Third World production in which United States TNCs played a more dominant role, an important option for industrial development in Mexico will have been lost.

C. ELECTRONICS: GEOGRAPHIC DIFFERENTIATION WITHIN FIRMS AND BETWEEN PRODUCTS

The electronics industry has grown so rapidly in the last two decades that some have claimed that it has "served as the basis of a second industrial revolution" [Volk, 1979:110]. During the course of this growth, segments of the industry have evolved in very different ways, both within the United States and globally. The discussion that follows looks at the disparate evolution of three segments of the industry: consumer electronics, semi-conductors, and computers. Table II-13 provides some idea of their evolution over the last 10 years.

1. Technological change and the expansion of United States electronics firms

United States firms pioneered each of the three segments of the electronics industry and at one time had commanding technological leads in each of them. By the end of the 1970s, their situations has diverged. In consumer electronics, many United States firms had been driven out of business. Those that remained were at a competitive disadvantage in a number of important product lines. In semi-conductors, United States firms remained competitive, in part because they had dispersed parts of their production operations to other countries, but the future was uncertain. Only in computers did the United States retain its commanding lead.

(i) Consumer electronics - The decline of the United States industry

As Table II-13 indicates, the United States position in TV receivers, traditionally the most important product line within the consumer electronics sector, has been steadily eroded over the course of the 1970s. Local production of black and white TVs has been essentially abdicated. Domestic production of color TVs appeared headed in the same direction until an OMA (orderly marketing agreement) was negotiated with Japan in 1977 and later followed up by agreements with the Taiwan Province of China and the Republic of Korea. As Table II-14 indicates, the ratio of value added to production worker wages is substantially lower in the consumer electronics sector than in semi-conductors or computers. More important from the point of view of labour, changes in the production process spurred by international competitive pressure have resulted in massive declines in the number of people employed in this segment of the industry. Employment in consumer electronics overall declined by over 40 per cent between 1966 and 1978, and employment in TV receivers declined over 50 per cent [Gray, et al., 1981:156].

Of 27 United States firms producing TV receivers in 1960, only five were still doing so in 1980 [Magaziner and Reich, 1981:171]. Diversified electronics firms (e.g., GE, RCA), able to benefit from substantial cross-product economies of scale in advertising, had managed to stay in the business. They were operating behind the protection of OMAs and utilizing an

extensive amount of offshore assembly to lower labour costs. Even so, their production costs were still reputed to be higher than those of low-cost Japanese producers, whether Japanese production was done in the United States or in Japan.

Even more disturbing from the point of view of the United States manufacturing sector is the high import penetration in other consumer electronic product lines where domestic demand is growing more rapidly than it is for TV receivers. One hundred per cent of the market for videotape players and recorders was held by imports as of 1978. For electronic watches and high fidelity and stereo components the figures were 68 per cent and 64 per cent respectively [United States Congress, OTA, 1981:77]. While United States firms have a strong position in certain new consumer electronics products (e.g., video games and video disk recorders), it is clearly open to doubt whether consumer electronics will survive as an important sub-sector of the United States domestic industry.

(ii) Semi-conductors - Rapid innovation and profitability problems

The semi-conductor industry grew out of the United States invention and commercialization of the transistor and is currently dominated by ever more complex integrated circuits. In certain respects the semi-conductors have behaved very much like a classically competitive industry. Competition has been intense, quality has improved, and prices have fallen. Since value-added figures do not take into account falling prices for improved products, the figures in Table II-14 substantially understate the real increase in output per production-worker hour. According to one estimate the cost per bit of information capacity in the semi-conductor industry has declined 35 per cent <u>each year</u> since 1970 [UNIDO, 1981a:150; cf. United States Congress, OTA, 1981:136]. The current structure of the industry, however, hardly conforms to neo-classical models of "atomistic competition". Firms are large and multinational and the relations between producers and major customers are tight and sometimes reinforced by equity links.

United States producers continue to hold a dominant position in the industry. Estimates of world semi-conductor production by geographic location of firm headquarters (as opposed to the location of the production itself)

Table II-13

U.S. Production and Trade in Electronics 1968 - 1979

	TV Receivers			Semi-conductors			Computers	
	Domestic Production (millions of sets)	* Imports as % Total Sales B&W	Color	Domestic shipments (billions $)	Exports as % of Domestic Production	Imports as % of Domestic Production	Domestic Production (billions $)	Exports as % of Domestic Production
1968(70)**	8.9	37%	11%	1.4	14%	6%	5.7	22%
1975	7.3	60%	19%	3.0	35%	29%	8.4	26%
1977	7.4	87%	28%	4.4	34%	32%	13.4	24%
1978	7.6	98%	27%	5.3	29%	31%	n.a.	n.a.
1979	8.9	94%	14%	6.9	30%	32%	20.9	25%

* Domestic production estimated by total sales - imports.
** Data in top row is 1968 for TV receivers and semi-conductors, 1970 for computers
B&W = black and white TV receivers

Source: U.S. Congress, OTA , 1981: 52

Table II-14

Wages and Value Added* in the Electronics Industry

	TV Receivers			Semi-conductors			Computers			Ratios All Manufacturing**
	(1) Value Added/ hr.	(2) Hourly wage	Ratio (1)/(2)	(1) Value Added/ hr.	(2) Hourly wage	Ratio (1)/(2)	(1) Value Added/ hr.	(2) Hourly wage	Ratio (1)/(2)	
1960	$6.40	$2.06	3.1	$8.64	$1.86	4.6	n.a.	$2.60	--	3.0
1970	$10.64	$3.00	3.5	$16.11	$3.07	5.2	$21.18	$3.75	5.6	3.4
1977	$22.81	$4.93	4.6	$27.40	$5.02	5.5	$45.20	$5.41	8.4	3.9

* Wage and value added are per production worker hour

** see table II-5 for wages and value-added/production worker hour for all manufacturing.

Source: U.S. Congress OTA , 1981: 55-59

suggest that the control of semi-conductor production by United States firms has increased from 53 per cent in 1978 to 64 per cent in 1981 [United States Congress, OTA, 1981:136]. The location of the production itself is, of course, another matter. As Table II-13 indicates, one of the major shifts in the industry in the late 1960s was that it became rapidly internationalized with exports rising from 14 per cent of domestic production in 1968 to 35 per cent in 1975 and imports rising even more rapidly, from 6 to 29 per cent. The crucial characteristic of the trade patterns in the industry, and the one that distinguishes it most clearly from consumer electronics, is that internationalization has not meant simply import penetration, but rather a joint rise in imports and exports.

The United States semi-conductor industry does not seem to be going the way of the consumer electronics industry, but the situation of United States firms, has become increasingly difficult in recent years. On the one hand, the industry has become increasingly capital intensive. Capital investments have risen from 12 per cent of sales in 1970 to 21 per cent in 1981 [UNIDO, 1981a:53]. The costs of the capital equipment necessary to set up a wafer fabrication facility increased from US$ 500 thousand in 1967 to US$ 10 million in 1979 and are projected to rise between three and a half and five times by 1985 [UNIDO, 1981a:106]. At the same time, Japanese companies have closed the technological gap between themselves and United States producers and increased their share of the market on the basis of strong price competition combined with high quality standards. The result has been falling profit margins within the industry and increasing difficulty in financing capital expansion and R and D.

In the last two years these difficulties have been magnified by problems of demand. In response to the 1974-75 recession, United States producers cut production, employment and investment. The Japanese used the inability of United States producers to fully supply the market after the recession to expand their own market share. As demand fell again in the second half of 1980, United States producers were more cautious, but when the predicted recovery in market growth still had not arrived in 1981 (or 1982) a "ferocious" price war ensued with the price of 16K RAMs, for example, falling from US$ 5.50 to US$ 1.00 between January and June of 1981 [UNIDO, 1981a:60].

The longer-term prospects for the semi-conductor market are excellent. As new end uses for semi-conductors, both in productive and consumer goods, multiply, demand will expand and in the event of an even moderate overall recovery in worldwide growth rates, growth rates in semi-conductors should return to the kind of levels that led to a more than doubling of the dollar value of United States domestic shipments between 1975 and 1979. As far as the technological position of United States firms is concerned, UNIDO's assessment is that,

> ...it would seem as if circuit innovation would be decisive for the next rounds of the competition. In this area, the United States companies still seem to be the undisputed leaders [UNIDO, 1981a:62].

In short, the 1980s are likely to be an uncertain and challenging time for the United States semi-conductor industry, and preservation of their currently dominant global position is by no means assured, but there is no evidence at present that the industry is likely to follow the path of steel or consumer electronics.

(iii) Computers - Future of United States dominance

Just as International Business Machines (IBM) continues to be the dominant firm within the computer industry worldwide, so the United States continues to dominate the industry. As the Office of Technology Assessment puts it [United States Congress, OTA, 1981:89], "If there is an industry in which the United States is internationally competitive par excellence it would have to be computers". About two-thirds of the computers in Europe are the product of United States-owned firms. The 45 per cent share of United States computer firms in the Japanese market is even more impressive. At the same time, "virtually none of the computers in the United States have been designed and built by foreign firms" [United States Congress, OTA, 1981:52]. As might be expected, United States dominance is as great in most Latin American markets as it is in Europe. In Mexico and Venezuela, for example, the United States supplies about 70 per cent of computer imports with the rest dispersed widely among Japan, France, the Federal Republic of Germany and the United Kingdom [United States Department of Commerce, 1981d:9; 1981e:7).

The tremendous resources at the disposal of IBM, and to a lesser degree other United States computer companies, will make it very difficult for European countries to close the gap which currently separates them from United States manufacturers. IBM spent more than US$ 1.5 billion on R and D in 1980 [Business Week, 6 July 1981:66] and US$ 2.25 billion to automate its production facilities [Business Week, 23 March 1981]. If there is indeed a "capital crunch" coming in computers [UNIDO, 1981a:196], IBM, and by extension the United States computer industry, is well positioned to meet it.

The future dominance of United States firms cannot, however, be taken for granted, as the recent National Science Foundation Report on Large-Scale Computing [NSF, 1982] makes clear. The Japanese Ministry of International Trade and Industry (MITI) has embarked on an ambitious programme aimed at the development of very high speed, large memory "super-computers", which involves six major Japanese computer producers (Fujitsu, Hitachi, NEC, Mitsubishi, Oki and Toshiba) and will be funded at a level of about US$ 200 million. Simultaneously, MITI is sponsoring a project designed to explore ways of reorienting the way in which computers manipulate data, known as the "Fifth Generation Computer Project". Finally, individual Japanese companies have also embarked on projects which could represent serious challenges to current United States dominance; for example, Fujitisu's "Vector Processor" which is designed to "exceed the performance of the Cray-1 up to a factor of 5" [NSF, 1982:AIII-3].

In the absence of a United States industrial policy aimed at promoting a similar level of basic innovation in the United States computer industry, future Japanese dominance must be considered at least a possibility. The members of the NSF panel on Large-Scale Computing in Science and Engineering concluded their findings by saying, "The panel believes that current funding levels are insufficient to maintain the Nation's leadership in large-scale computing" [NSF, 1982:Executive Summary]. Thus, even in the computer industry the international position of United States manufacturing will depend at least in part on United States industrial policy.

2. The changing geographical distribution of productive activities

The electronics industry as a whole epitomizes the capacity of TNCs to

break down the production process into distinct phases requiring varying amounts of technology, capital and labour and then to disperse more labour-intensive aspects of the process to Third World locations while keeping the more capital- and knowledge-intensive parts close to the corporate headquarters. If the electronics industry shows nothing else, it shows that there is no necessary relationship between the degree of capital and/or knowledge intensity that characterizes an industry globally and the possibilities for labour-intensive, export-oriented assembly operations in Third World countries. It also helps underline the fact that opportunities for intra-corporate exports from developing countries back to the United States are most likely to be found in industries where United States TNCs have the highest degree of control over the international organization of the productive process. The geographic strategies of TNCs have provided opportunities for developing countries interested in export-oriented manufacturing development. But, the long-run returns to collaboration in these strategies are far from clear. In part, they are unclear because the extent to which future TNC strategies will continue to replicate the current geographic division of labour is unclear.

(i) Consumer electronics - Problems of locating production in lower-wage areas

In their analysis of the current evolution of the consumer electronics industry, Gray et al., [1982:159] summarize the strategy of United States TNCs as follows:

> Japanese consumer electronics manufacturers focused on product development and high volume production, linked to a sophisticated strategy for gaining a substantial part of United States markets. Their American competitors eschewed this approach, responding primarily by relocating much of their operations in lower-cost production sites.

The results of this strategy showed up in the tremendous increase of imports of 806.3/807 television receivers and parts back to the United States from the overseas subsidiaries or sub-contractors of United States TNCs. Imports of television receivers under 806.3/807 increased more than tenfold between 1966 and 1975 as did imports of components and parts

[Gray et al., 1982:157]. Yet the use of low-cost (mainly East Asian) labour was insufficient to stem the tide of Japanese and later Taiwanese and South Korean imports.

The difficulties of United States television manufacturers have been well outlined by Magaziner and Reich [1982:173]. Analysing the comparative costs of United States and Japanese producers, they discovered that by locating production facilities accounting for just over half the labour inputs abroad, United States firms had in fact reduced their total average wage rate to 50-60 per cent of the Japanese rate, but Japanese process innovations had reduced the labour input per set to 30-50 per cent of the time required by the United States production processes. Consequently, Japanese direct labour costs remained low despite the higher Japanese wage rates.

While the orderly marketing agreements (OMA) negotiated beginning in 1977 have taken the pressure off United States producers of colour TVs, they have not changed comparative manufacturing costs. Since the Japanese competitive advantage was not based on low wage rates, there was no barrier to them setting up production in the United States and becoming part of the "domestic" industry. Between 1978 and 1980 the United States output of Japanese manufacturers more than doubled which meant that local production in the United States had acquired a market share in the same range as that held by the Japanese imports prior to the imposition of the OMA [Magaziner and Reich, 1982:170]. As Japanese production in the United States increased, imports from Japan diminished sufficiently so that the OMA with Japan could be allowed to expire (though the OMAs with the Taiwan Province of China and the Republic of Korea remained in effect until mid-1982) [United States Congress, OTA 1981:115].

It would be an exaggeration to suggest that as TNCs in consumer electronics more fully explore the trade-offs between innovation and low wage rates, they are likely to end up "relocating in the North" [UNIDO, 1981a:210-215]. Analysis of changing assembly technology and geographic location suggests that Japanese companies may simultaneously use automated assembly techniques at home and more labour-intensive ones

abroad and that United States firms are also making simultaneous use of more and less labour-intensive production technologies in different locations [UNIDO, 1981a:212-215]. Even within advanced industrial countries a variety of different production technologies may be introduced at certain favoured locations within the Third World.

All of this suggests that the future geographic distribution of assembly operations will follow neither a simple "cheap labour" logic nor a straightforward "automate and centralize" logic, but will be shaped by a complicated interaction of the two. Nonetheless, a country like Mexico, which has become the dominant assembler of TV parts and apparatus for United States producers (see Table II-17 below), must take into account the extent to which its position is vulnerable to changes in technology.

(ii) The geographical division of labour in semi-conductors

Shifting patterns of production location in semi-conductors mirror the patterns in consumer electronics, but the more clearcut technological differentiation of the production proccess makes the geographical division of labour more likely to remain stable. Nonetheless, in semi-conductors, as in consumer electronics the flow of United States firms to Third World locations may be in the process of slowing down.

The process of chip (integrated circuit) fabrication can be roughly divided into four stages: design, wafer fabrication, assembly/bonding, and testing. Traditionally, only the third has been relocated to low-labour cost areas. Design is, of course, highly knowledge intensive. Wafer fabrication is extremely capital intensive. The difficulties of trying to relocate the capital-intensive phases of the industry abroad are greatly intensified by the rapid rate of innovation in the industry. The average age of capital equipment in the industry is only 4.4 years [UNIDO, 1981a:53], and continues to fall. A wafer fabricator must continually introduce new production equipment and replace old equipment. Proximity to suppliers and sophisticated maintenance facilities is consequently very important. Until the process of technological change in wafer fabrication slows down, it will be

difficult for Third World countries to acquire more than assembly operations (though Singapore is trying to move in that direction) [UNIDO, 1981a:227].

Despite the difficulties of moving other phases of the production process abroad, overseas assembly remains critical to the industry. Assembly operations are labour intensive, so much so that overseas employment in the industry is reputed to amount to 80 per cent of United States domestic employment [USITC, 1982c:8]. Survey data collected by the United States USITC in 1979 indicates that the overseas employment as a proportion of total employment in United States semi-conductor firms increased significantly during and after the 1974-75 recession. Between 1969 and 1978 the proportion of United States semi-conductors assembled offshore increased from 40 per cent to between 78 and 93 per cent [Flamm, 1981:377, 445].

Given the rate of technological change in the industry, investing in capital-intensive equipment to automate production could easily backfire as new product technologies make the equipment obsolete. The semi-conductors used in computers have a life span of about 24 months. If production equipment must be changed along with the product, the capital investment required for automated assembly is likely to be prohibitive. Philco, which attempted an automated assembly strategy with transistors in the late 1960s, was forced out of the transistor business by such problems [Flamm, 1981:337]. Thus, while there have been calls in semiconductors, as in consumer electronics, to automate assembly operations and bring them back onshore [UNIDO, 1981a:254], there does not seem to have been any significant movement in this direction. In 1981, 78 per cent of the semi-conductors imported into the United States came under 806.3/807, which is to say they represented re-imports of United States wafers that had been assembled abroad.

The apparent robustness of the offshore assembly strategy in semi-conductors should not be exaggerated. First of all, as chips become larger and more complex the proportion of the total cost accounted for by assembly labour decreases dramatically. For a discrete semi-conductor of a simple integrated circuit assembly, labour may account for a third of

the total cost. For a complex chip, it may account for less than five per cent [Flamm, 1981:410c]. Thus, the relative importance of assembly wages diminishes as chips become larger. At the same time the importance of quality control increases with the scale of the chip and, since automated assembly makes defect detection easier [Flamm, 1981:338], this may make manual (and by implication offshore) assembly less attractive as chips grow larger and denser. For Latin America in general, and especially for countries like Mexico, which is a major supplier of semi-conductors to the United States, the evolution of the geographical division of labour in semi-conductors must be an important issue. To some degree, this future will be affected by United States industrial policy, but the more immediate determinants are likely to be firm strategies and the technological evolution of the industry.

Participating in the geographical division of labour as United States firms have defined it in the semi-conductor industry does tie Third World producers into a rapidly growing market. Imports of semi-conductors under 806.3/807 grew tenfold between 1970 and 1978 and had almost doubled again by 1980, despite the downturn in the United States market for semi-conductors during 1980. On the other hand, the participation of developing countries is limited, it appears, to a shrinking segment of the value added. As integrated circuits become denser and more complex, the exported chip contains a larger and larger share. The evolution of the share of offshore assemblers in the valueadded of 806.3/807 imports of semi-conductors gives an indication of the trend. After a peak of about 55 per cent of value added in the early 1970s, the offshore share has fallen steadily, reaching a low of 33 per cent in 1981 (see Table II-15).

There is even some indication that the more promising role for at least the largest Latin American countries may lie, not in participating in the geographical division of labour in the production of semi-conductors, but in working in the direction of import substitution. While exports of semi-conductors from Mexico to the United States came close to doubling between 1977 and 1981, exports from the United States to Mexico increased by more than two and a half times [USITC, 1982c:28-29]. The recent increase in corporate plans for semi-conductors

facilities in Brazil aimed at "access to the potentially huge Latin American market" rather than export back to the United States [UNIDO, 1981a:241], is also an indication that semi-conductors may have reached a point at which import substitution - rather than filling a "cheap labour" slot in the division of labour - may be the most promising avenue for the development of the industry in Latin America.

(iii) Computers - Continued geographical centralization

Since the computer industry is a major consumer of semi-conductors, accounting for about 35 per cent of United States consumption [USITC, 1982c:11], the industry participates indirectly in the geographical division of labour as defined by the semi-conductor industry. Beyond this indirect participation, however, the computer industry is concentrated in the industrialized countries. While major computing firms have set up subsidiaries in Latin America, these are primarily sales organizations. IBM does assemble computers for export in Brazil [United States Department of Commerce, 1979], but, in general, integrated computer manufacturing operations have not been set up.

Latin American markets are increasingly important to the computer industry. In the late 1970s Brazil and Mexico ranked among the more rapidly growing markets for computers in the world [UNIDO, 1982a:231]. The market for computers and peripheral equipment in other Latin American countries is also expected to grow rapidly (see for example, United States Department of Commerce, 1981e:2 on market projects for Venezuela). Despite this increasingly attractive market, however, IBM and other United States computer TNCs have been very wary of setting up any Latin American facilities that might dilute control of the technology which is their primary source of high returns. The relative lack of success of the Brazilians in their attempts at breaking through the monopoly of the industrialized countries in the production of computers (discussed below) is indicative of the difficulties that will confront any Latin American attempts to change the geographic division of labour in this industry.

3. Possibilities for future United States industrial policy in the electronics industry

Since electronics is the archetypal "sunrise" industry, it would be an obvious candidate for positive adjustment policies were United States industrial policy to move in the direction of positive adjustment. So far, however, government stimulation of the industry has come primarily through the effects of defense procurement. Nor is there any immediate prospect for other kinds of stimulation in the future. On the other hand, there is also little prospect that attempts to insulate the industry from international competition or to retard the process of structural change within the industry will go beyond the limited attempts that have already been made in consumer electronics.

(i) Limits on the potential for protectionist policies

Gray and his collaborators [1982:158] summarize the main thrust of United States government policy towards the electronics industry as having "meant that it has been easier for major firms to adapt to competitive challenges by relocating facilities abroad". The network of international investment that has emerged, partially in response to this policy, makes it exceedingly unlikely that substantial protectionist barriers will be erected in the electronics industry. Even in consumer electronics, United States producers rely too heavily on imported parts and sub-assemblies to advocate serious moves in the direction of greater protectionism. In addition, the initiation of local United States assembly operations by Japanese firms has demonstrated that barriers to trade will not provide protection from international competition.

In semi-conductors and computers the prospects for any kind of trade restriction seem even smaller. The computer industry does not need protection. In addition, it benefits substantially from international competition in the chip market. Even though IBM is one of the largest domestic semi-conductor manufacturers, it has required increasing purchases from merchant firms to supplement its captive production. In 1980 IBM was reputed to be looking to the open market to provide 25-30 million 16K RAMs, about 50 per cent of the industry's 1979 production [UNIDO 1981a:47].

Table II-15. US 806.3/807 Imports of Semi-conductors 1970-1981
(in millions of U.S. $)

	(1) Total U.S. Imports	(2) 806.3/807 Imports	(3) Foreign Value Added*	3 as % of 2	3 as % of 1
1970	157	139	61	44%	39%
1973	619	410	225	55%	36%
1977	1,358	864	407	47%	30%
1978	1,790	1,329	536	40%	30%
1979	2,448	1,852	711	38%	29%
1980	3,348	2,451	909	37%	27%
1981	3,582	2,805	918	33%	26%

* Foreign value added = dutiable value = total 806.3/807 - U.S. content

Sources: 1970, 1973 - UNIDO, 1981a: 246
1978-79,80 - USITC, 1981: 40-41
1977,1981 - USITC, 1982: 15

While the Japanese might gain sufficient competitive advantage in 64K RAMs (or later 256K RAMs) so that United States semi-conductor firms would want an OMA, their possibility of getting one would depend largely on the reaction of the computer industry. Lately, the computer industry has been relatively protective of its domestic suppliers (e.g. IBM's recent investment in Intel). But, if protection meant significantly higher semi-conductor costs and if Japanese computer advances made international price competition a more salient factor in the computer industry, it is hard to imagine the United States endangering the competitiveness of its "internationally competitive par excellence" computer industry in order to protect the semi-conductor industry's least competitive lines. Since semi-conductor producers themselves depend so heavily on the re-importation of assembled chips, a move in the direction of increased protectionism on their part appears unlikely to begin with.

(ii) Possibilities of "sunrise" industrial policies to stimulate growth of the industry

Traditionally, the Department of Defense has had the primary role in shaping United States industrial policy in the electronics industry. According to the United States Department of Commerce, government purchases account for more than half the total value of domestic shipments in the electronics equipment and components industry [United States Department of Commerce, 1982:232]. The Pentagon's procurement needs have been a critical factor in the development of both computers and semi-conductors.

The role of the military in the development of semi-conductors illustrates both the advantages and pitfalls of this form of aiding "sunrise" sectors. On the one hand, because of the military significance of semi-conductors, the government funded about half the R and D expenditures in the industry and provided the most important segment of the market. In the 1960s, military sales accounted for 48 per cent of all semi-conductor sales. In 1962, when integrated circuits were being introduced, the military accounted for 100 per cent of the market [Flamm,

1981:328b]. The subsidies and stimulus to growth provided under military auspices were undoubtedly critical to the emergence of United States dominance in the industry and it is hard to imagine the kind of support the industry received being generated by any rationale other than military need. This method of stimulating "sunrise" sectors is, however, unlikely to be optimal from an economic point of view.

It can be argued that the role of defense procurement in shaping the growth of the semi-conductor industry has been detrimental to its commercial competitiveness. It is not only that products designed for military needs may not be easily adapted to commercial markets but also that the production methods developed in the context of military production may be inappropriate. Flamm [1981:480] argues, for example, that the "brute force 'burn in' quality control techniques" which United States producers developed in response to military needs were "far less economic than the statistical techniques used by the Japanese". Whether or not one accepts these arguments it is clear that one of the important differences between the United States and Japanese industrial policies toward the electronics industry is that United States industrial policy is greatly influenced by defense policy whereas Japanese industrial policy is aimed exclusively at commercial competitiveness. A good example of this contrast is provided by the VLSL (Very Large Scale Integrated Circuit) cooperative research programme sponsored by MITI and the VHSIC (Very High Speed Integrated Circuit) project sponsored by the United States Department of Defense. The MITI sponsored project was aimed toward commercially-oriented process innovations, whereas the VHSIC programme emphasized military applications [United States Congress, OTA, 1981:83-88].

There appears to be little prospect for any United States government "targeting" of the electronics sector in the immediate future. Support or subsidy for research and development would be the most likely form of targeting and even this does not seem probable. When sixteen major electronics companies met in the Spring of 1982 to discuss the possibility of cooperative research and development, the salient concern with regard to the potential role of the United States government was not whether government sponsorship was possible but whether prosecution by

the Justice Department on anti-trust grounds was likely [Wall Street Journal, 1 March 1982:6]

In short, while past United States policy in the form of 806.3/807 tariff breaks and support for overseas investment in the electronics industry have played an important role in shaping Latin America's relationship to the United States industry, any future changes in that relationship are more likely to be due to technological changes or the emergence of new firm strategies than to United States industrial policy.

4. Implications for Latin America

The basic issue as far as the future development of the electronics industry in Latin America is concerned is whether Latin America's principal role will be filling in the most labour-intensive links in the production process as organized by United States TNCs or whether it is possible at this time to develop an electronics industry within Latin America which includes the more knowledge- and capital-intensive stages of the production process. Mexico and Brazil provide examples of the two strategies. Mexico has been quite successful in developing its participation in the production process as organized by United States TNCs. Brazil has been relatively unsuccessful in its attempts at national development of a more integrated industry.

(i) Mexico - The future of export-oriented assembly

At first glance, Mexico would seem to provide a clear example of the benefits to be gained from participation in the geographical division of labour as it has been defined by United States electronics TNCs. By 1980 it was the primary source of TV apparatus and parts of United States firms, accounting for just under two-thirds of all 807 imports in this product category (see Table II-16), more than double the share of the two largest East Asian suppliers combined (Taiwan Province of China and Singapore) [USITC, 1981:43]. While its exports of semi-conductors were not large relative to the exports of East Asian suppliers, about one sixth of the exports of Malaysia, the leading supplier [USITC, 1982c:28], they still accounted for a substantial portion of Mexico's 806.3/807 exports.

A slightly longer-term examination of Mexico's electronics exports reveals the problems of the export-oriented strategy. This is particularly well illustrated by the case of 806.3/807 semi-conductor exports, as shown in Table II-17. In the late 1960s and early 1970s Mexico's share of 806.3/807 semi-conductor exports was expanding and Mexico had a virtual monopoly on offshore semi-conductor assembly in Latin America. In the early 1970s, increasing competition from Asia began to erode Mexico's share. Then, in 1976, a combination of devaluation, strikes and work stoppages, and political uncertainty appears to have stimulated a major shift in TNC attitudes toward Mexico as an offshore assembly site for semi-conductors. Its share dropped first to 11 per cent then to 5 per cent. By 1978 El Salvador and Barbados together were exporting more 806.3/807 semi-conductors to the United States than Mexico was.

Significant shifts in TNC investment strategies in semi-conductors had preceeded the declines in Mexico's share of exports. Finan's data on establishments of offshore assembly sites by a sample of 32 United States semi-conductor firms [cited in Flamm, 1981:367b] shows that there was already a shift away from Mexico in the early 1970s. Of roughly 15 assembly operations established in Latin America prior to 1972, 80 per cent (12) were in Mexico. Of 8 assembly operations established between 1972 and 1974, over 60 per cent (5) were outside of Mexico.

The shift of United States semi-conductor operations from Mexico to the even lower-wage countries of the Caribbean provides a graphic demonstration of the problematic nature of an industrial strategy which relies too heavily on fitting into the international division of labour as defined by TNCs. The option of participating may well be contingent on controling both wages and the domestic political predictability. The economically disruptive consequences of the TNCs' negative evaluation of a particular country may in turn result in a self-fulfilling prophecy as their withdrawal creates further reason for economic and political instability.

Despite the risks involved, there remain, of course, powerful incentives for participating in export-oriented assembly operations in

the electronics industry. The prospects for participants in semi-conductor assembly have already been mentioned: The market is growing very rapidly even though the share of foreign value added seems to be falling. In the case of TV apparatus and parts, the market is growing more slowly but the share of 807 imports relative to total imports seems to be growing, at least in the most recent period (see Table II-16).

Since United States policy on 806.3/807 imports is unlikely to change, only a combination of changes in firm strategy and technology is likely to undermine the position of electronics as a foreign exchange earner. In the absence of such changes, the probable evolution of United States industrial policy would seem likely to increase the attractiveness of electronics as an export industry. Increasing protectionism in industries in which trade is not so thoroughly integrated into the production strategies of United States TNCs is likely to make trade in electronics an avenue of lesser resistance and therefore a likely prospect for expansion.

Whether the expansion of export-oriented electronics should be considered a positive development from the point of view of Mexico's overall industrial development is open to debate. Electronic assembly operations are unlikely to be the basis of a more vertically integrated industrial development in the future. In semi-conductors, the technological barriers to either forward or backward integration are a serious obstacle. It is, in fact, not at all clear that the presence of offshore assembly operations significantly facilitates the acquisition of the technology and experience that would be necessary to move into wafer fabrication. The high degree of TNC control over the industry presents an additional obstacle. While locally-owned firms might be willing to try to integrate forward or backwards, TNCs have little motivation for doing so. There is some possibility of forward integration from consumer electronics assembly, but the result would be a luxury consumer goods industry (e.g. TV receivers) with few linkages to other industrial developments.

Table II-16.

Mexico as a source of 807 Imports of Television Apparatus and Parts 1977-1980

	1977	1978	1979	1980
Total U.S. Imports	1,367	1,817	1,854	2,125
807 Imports	451	745	865	941
Mexican share of total imports	16%	21%	30%	30%
Mexican share of 807 imports	48%	51%	64%	66%

Source: USITC, 1981: 42-43

TABLE II- 17. Latin American Shares of 806.3/807 Semi-Conductor Exports to the U.S. (figures are % shares of market)

	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978
Mexico	22	26	28	21	19	20	18	11	6	5
El Salvador	0	0	0	0	0	0	0	1	3	3
Haiti	0	0	0	z	z	1	z	z	1	1
Barbados	z	0	z	0	z	z	z	z	1	3
Netherlands Antilles	1	z	z	1	z	1	z	z	0	0
Brazil	0	z	z	0	0	z	1	1	1	1
Latin America	24	26	28	22	19	22	20	15	12	13

Source: Flamm, 1981: 370a

calculated from magnetic tape provided by USITC

z = less than 1%

There is a strong contrast between the probable linkage effects of building exports around electronics assembly and those to be expected from building them around petrochemicals. Installing basic petrochemical capacity is very likely to bring the development of a variety of immediate and final product capacity in its wake. The institution of electronics assembly operations is unlikely to have a stimulating effect on other industries, either forward or backward.

The development of export-oriented electronics manufacture is a strategy that will create few tensions with United States firms or with United States industrial policy. It also offers some positive effects in terms of job creation. But, because it is vulnerable to shifts in TNCs evaluation of the local investment climate, because it has so little prospect of generating forward or backward linkages, and because the skills that can be acquired by those who work in it are limited, it is an avenue of growth that does not seem likely to have strong positive implications for overall industrial development.

(ii) Brazil - The pitfalls of trying to create an integrated local electronics industry

In 1977, Brazil decided that its dependence on TNCs in the computer industry was intolerable in terms of its long-run goals of industrial development. A state-owned company (COBRA) was created to produce mini-computers using technology provided by a small United States firm. Four locally-owned companies were also allowed to produce mini-computers, but TNC subsidiaries were restricted to micro-computers and larger computers. This bold nationalist venture in the electronics industry was a response in part to the unwillingness of major computer companies to enter into joint ventures that would provide local partners with real access to their technology [see Evans, 1979]. It may also have been stimulated by observation of the high degree of TNC domination in other branches of the electronics industry. Eight firms, all TNC subsidiaries, control 75 per cent of Brazil's production of electronic components [United States Department of Commerce, 1979:101].

By 1982 the success of Brazil's initiatives had proven unsatisfactory. Four out of five mini-computer firms were operating in the red [Business Latin America, 20 October 1982:335]. Transit, the firm

which was supposed to produce components and allow the mini-computer firms to integrate backwards, was bankrupt [Latin America Weekly Report, 29 October 1982:8]. Users of mini-computers were forced to pay prices 3.5 to 4 times higher than world market prices and were offered equipment reputed to be "at least a generation behind the state of the art" [Business Latin America, 20 October 1982:335]. TNC-produced micro-computers had taken over a substantial portion of the market share previously held by mini-computers and a growing market in smuggled computers had developed. High-priced, technologically backwards data processing obviously had a negative effect on the efficiency of businesses in general. If the policy does not result in a viable locally-controlled computer industry, then the costs will have been substantial and the benefits dubious.

The example of the computer industry should not be taken to indicate the impossibility of nationalist strategies in the electronics industry. Brazil has been quite successful in its attempts to "Brazilianize" the telecommunication industry [Business Latin America, 15 September 1982:292]. The problems in the computer industry do, however, make clear the difficulties of trying to overcome a large technological gap without any co-operation from the TNCs that control the technology. Joint ventures of the kind that Brazil has succeeded in developing in the petrochemical industry might have provided a solution, but the extremely strong technological position of TNCs in the computer industry makes it possible for them to avoid such shared control.

The likelihood of any United States industrial policy reducing the problems confronting nationalist attempts like Brazil's is very small. Openness to imports is not an issue since international competitiveness is beyond the grasp of the Brazilian computer industry. There is no possibility of policies designed to encourage TNCs to enter into joint ventures that would involve sharing technology. Should the United States step up attempts to promote computer exports in the future, Brazil's policies would also certainly be critized. Both trade barriers and restrictions on TNC investments are likely targets if the United States should decide on a policy designed to take fuller advantage of its strong international position in the computer industry.

Brazil's more nationalist electronics strategy is more likely to result in conflict with eventual United States industrial policy than Mexico's export-oriented strategy. It is not clear, however, that Brazil's policy offers in compensation greater possibility of a broadly positive impact on the overall industrial development.

D. THE REPRESENTATIVENESS OF THE ILLUSTRATIVE INDUSTRIES

Looking at the changing structural position of United States manufacturing and the corresponding United States industrial policy through the lens of only three industries opens the possibility of a biased view. How representative are the industries that have been examined here? To what extent can they really be considered illustrative of the overall situation of United States manufacturing? How might consideration of other industries modify the conclusions reached so far? A brief consideration of these broader issues is the necessary precursor to an examination of the possibilities for the future interaction of the United States and Latin American manufacturing sectors.

1. The representativeness of the illustrative industries

While the discussion in Part II has been defined more specifically than the broad industrial categories used originally in Table I-1 in Part I, that table is still helpful in placing the illustrative industries in context. Two of the illustrative industries (petrochemicals and electronics) are taken from the growing (as opposed to stable or declining) industries. In fact, the industrial categories from which they are drawn (SIC 28 and 36) have expanded their share of output more rapidly than any of the other categories in the table and together they accounted for half the output of the "growing industries" in 1979. Focusing on these sectors should have provided ample opportunity for uncovering United States policies designed to stimulate or promote "sunrise" industries.

The third industry, steel, provided a counterbalance to the first two. According to Table I-1, primary metals (SIC 33) lost a larger share of total output between 1959 and 1979 than any other industrial

category. The inclusion of steel insured that our small sample covered the gamut from growth to decline. Given the salience of the steel industry in policy terms, steel provides a very good case for the examination of policy toward declining sectors.

The industries selected also illustrated range of experience with regard to United States trade patterns. The computer industry exports an unusually high proportion of its output (see Table II-13). Petrochemicals are also important as an export industry. Failure to export coupled with high import penetration is a problem for steel. Consumer electronics is a prime example of high import penetration. Semi-conductors offers a unique example of an industry in which both import and export coefficients are high due to the extreme extent to which the production process has been internationalized.

The illustrative cases did not provide a good range with regard to the position of labour. The classic labour-intensive industries whose share of total employment is higher than their share of output - textiles and apparel - were not included. All of the industries that were included were relatively capital intensive, characterized by a higher value added per production worker hour than the average for all manufacturing (see tables II-5, II-14). The only one of the three industries in which the level of wages is a primary issue in competitiveness is steel* and here wages are an issue more because they are high relative to value added, than because typical United States manufacturing wages would make the industry uncompetitive. (Production workers in steel receive an hourly wage that is 60 per cent higher than production workers in the computer industry but produce a value added that is 50 per cent lower).

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* Wages are also an issue in consumer electronics, but not the primary determinant of competitiveness. In semi-conductors United States wage levels do make certain phases of the production process non-competitive, the industry as a whole remains competitive.

Given the capital-intensive character of the illustrative industries, the kind of policy issues raised by low-wage, labour-intensive industries like textiles and apparel have not been broached as thoroughly as might have been warranted. Since such industries are also those most likely to generate protectionist responses [see Anderson and Baldwin, 1981; Franko, 1981] the discussion may then have had a tendency to underestimate the role of protectionist responses in the overall contours of United States industrial policy. Careful consideration of the situation of other industries suggests, however, that this is not as serious a distortion as it might first appear.

2. The lessons of industries not considered

Questions of wages and their implications for competitiveness are usually salient in discussions of the international aspects of United States industrial policy. The special example of a threatened United States industry is textiles/apparel, in which wages, already low by general United States standards, are still too high to allow the industry to compete without substantial barriers to the entry of imports, particularly from the Newly Industrializing Countries. Despite speculative attempts to find technological answers to problems in these industries, the possibilities for technological changes are limited. Consequently, the choice between protection or decline is more clear-cut.

Is it not the case then that prognostications regarding the future contours of United States policy should focus more heavily on these "sunset" industries? For two reasons, this question should probably be answered in the negative. First of all, low-wage, labour-intensive industries already represent a relatively circumscribed segment of the manufacturing sector, one with therefore rather limited overall political influence. Perhaps even more important, decisions regarding governmental support for the low-wage, labour-intensive industries have for the most part been taken; either for protection, as in the case of textiles, (which has done quite well under its umbrella) or not, as in the case of

footwear.* These industries still provide an important reservoir of potential demand for protectionist measures which should not be ignored. But whether their preferences will be reflected in overall future policy depends more on the degree to which they can gain support from other sorts of industries than on the future evolution of these industries themselves.

Perhaps the most important source of future allies are what might be called the "high-wage uncompetitive" industries, of which steel is the archtype. The salience of this category has increased with the shifting situation of the auto industry as firms invest heavily in increasing productivity and in new products designed to meet foreign competition but also move in the direction of supporting protectionist solutions. If a trend towards protectionism builds up the political weight behind protectionist policies is substantially increased. The recent passage by the United States House of Representatives of a resolution calling for "local content" restrictions is an indication of just how critical the auto industry can be in shifting overall policies with regard to international trade issues.

The main lesson to be gained from considering other industries is that the case of the steel industry should not be looked upon as an exception. The momentum toward protectionist policies that can be seen in the steel industry case must be taken very seriously. This is not to say, however, that the analysis of future industrial policy should be focused more heavily on victims of import penetration, even more recent victims like the auto industry. TNCs remain the most important reservoir of political pressure on issues relating to the international economy [c.f. Helleiner quote, page 23]. Petrochemicals and electronics will generate fewer headlines around issues of international trade and industrial policy than steel or autos, but it is the expanding transnational capital in industries like chemicals (oil) and electronics

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* It is also important to keep in mind that the firms which remain, even in industries like footwear, have become differentiated. The larger, more successful ones have developed internationalized strategies, not unlike those of firms in consumer electronics [see Evans, 1979a].

that are likely to have the largest influence in generating future industrial policy, particularly insofar as it has international ramifications.

3. Overall contours of future United States industrial policy

The central inference to be drawn from the illustrative industries is that prospects for positive adjustment policies in the future are not encouraging. The industry case studies have illustrated this in two ways. First, in industries where the chances of enhanced international competitiveness are reasonable there is no indication of any past attempts or future intentions at policies aimed at maximizing competitive potential. In petrochemicals there is no indication of any policies designed to compensate for the loss of international competitiveness that must inevitably follow from decontrol of raw materials prices. In semi-conductors there is no evidence of any attempt to counter the financial pressure under which firms find themselves as a result of severe price competition combined with escalating capital requirements.

On the other hand, the steel industry shows clearly the lack of creative policy response even when industrial distress is chronic and extreme and when ad hoc protectionism (voluntary restraint agreements and trigger-price mechanisms) has not been successfull in revitalizing the industry. The Youngstown community steel corporation, one of the more innovative responses (described in Part II), was not granted a loan guarantee from the Economic Development Administration. There has not been any major attempt to devise a policy for a more rational and less socially-disruptive "shrinking" of the steel industry, which would seem to follow from Crandall's [1981] very convincing analysis.

Positive adjustment policies can be found neither in potentially competitive industries nor in clearly declining ones. Efforts at piecemeal protectionism are likely to continue, perhaps attenuated in some areas by general free trade preferences, or perhaps intensified by requests for protection from a growing number of industries.

4. Implications for Latin America

The implications of the current situation for Latin American manufacturing are relatively straightforward, and not particularly encouraging. From United States policy little support can be expected. If a recovery of demand for manufactured goods in the United States economy depends on industrial policy, it is unlikely to occur. Therefore, insofar as Latin Americans might hope for growth of demand in the United States economy to expand markets for manufactured goods, their hopes will have to rest with other kinds of policy (e.g. fiscal and monetary policy) or with a cyclical upturn unrelated to policy.

There is little prospect, at least through the mid-1980s, that policies stimulating the shift of capital and labour into more technologically advanced and internationally competitive sectors might relieve pressures for protectionist barriers against Latin American exports in industries in which the United States is no longer competitive. To the contrary, there is even the possibility that protectionist pressures might spread to industries whose competitive position has been traditionally strong, like petrochemicals.

Finally, there is no convincing evidence that even in industries characterized by substantial internationalization that TNCs will provide reliable allies for Latin American manufacturing sectors in conflicts with United States domestic interests. The degree to which United States auto manufacturers appear to be willing to modify their pro-free trade stance, after having spent a good deal of the 1970s developing strategies which involved an internationalization of the process of production of autos, is a case in point. The fact that the future strategies of oil and chemical TNCs, to the extent that they move in the direction of promoting imports of basic petrochemicals into the United States domestic market, may serve more as a means of access for Middle Eastern rather than for Latin American production is a second case in point. Finally, in the electronics industry, where TNCs appear to have tied their fortunes most thoroughly to Third World manufacturing, the prospects for growing Latin American participation appear very limited. The rush to set up new offshore assembly facilities has abated, the proportion of

offshore value added in 806.3/807 imports is falling, and the spector of a turn toward greater emphasis on onshore automated assembly is real.

The longer term prospects for the interaction of the United States and Latin American manufacturing sector will depend to a large degree on whether current policy trends persist past the mid-1980s. If they do not there are substantial possibilities for more positive mutually supportive interaction, but there are also substantial possibilities for more serious deviations from reciprocal growth patterns.

Table II-18.

Distribution of Mexico's 806.3/807 Exports - 1980
(in millions of U.S. $)

	Total 806.3/807 Exports		Mexican Value added	
	Amount	%	Amount	%
Apparel and textiles	199	9%	58	5%
Electronics:				
TV apparatus & parts	618	26%	418	36%
Semi-conductors	115	5%	39	3%
Other electronics *	473	20%	193	17%
Total electronics	1,207	52%	650	56%
Other commodities **	935	40%	446	39%
Total 806.3/807	2,341		1,154	

* includes principally, circuit breakers, connectors, regulators and conductors, capacitors, resistors, tape recorders, and radio apparatus and parts.

** includes electrical motors and generators, motor vehical parts and engines, scientific instruments, luggage, electrical household appliances and miscellaneous machinery among its principal categories.

Source: USITC, 1981: B-26-28, B-53 (Tables 9 and 21)

PART III

POSSIBILITIES FOR THE FUTURE INTERACTION OF UNITED STATES AND LATIN AMERICAN MANUFACTURING SECTORS

Four policy scenarios were outlined in Part I. The aim of this final Part is to bring these policy scenarios together with the concrete descriptive material on specific industries that is presented in Part II in order to provide a more elaborate assessment of the probable future consequences of different policy scenarios. The probable effects of each of the four scenarios in each of the three industries will be discussed, followed by a brief attempt to project effects in other industries not considered.

Before embarking on the discussion of the four policy scenarios, however, it is necessary to provide a more differentiated picture of the region by surveying the varying nature of United States economic relations with different groups of countries within Latin America. The material presented in Parts I and II is either written as though ties between United States and the various Latin American manufacturing sectors were homogeneous or consists of specific case examples of particular industries in individual countries (e.g. petrochemicals in Mexico), leaving the impression that Latin America is a collection of uniform national entities sharing the same interests and economic possibilities. In order to provide a more realistic picture of the diversity of Latin American situations, four groups of countries will be considered separately: the major NICs (Brazil and Mexico); the Southern Cone (Argentina, Chile, Uruguay and Paraguay); the Andean countries (Venezuela, Colombia, Peru, Ecuador and Bolivia); and the smaller countries of the Caribbean Basin (Central America and the Caribbean Islands).

The last, and perhaps most important, aim of this Part is to analyse more closely the ways in which the implications of these scenarios for the future manufacturing development of Latin America are likely to be modified by the policy responses of the Latin American countries

themselves. Since the empirical emphasis of the report as a whole is primarily on United States manufacturing and United States industrial policy, the discussion of possible Latin American responses is largely speculative. Such speculation is, however, necessary, if only to underline the fact that the effects of United States policy on Latin America are not automatic but depend on Latin American responses.

A. VARIATIONS ACROSS COUNTRIES

The countries of Latin America vary substantially in the extent and manner in which they have been integrated into internationalized systems of production organized by United States TNCs. They also vary in terms of their ability to take advantage of export opportunities created by increased United States openness and in the range of sectors for which local industrialization is a reasonable alternative to continued reliance on manufactured imports. Examining variation across individual countries will clarify the differential importance for individual countries of the opportunities and potential conflicts implied by different policy scenarios.

1. The major Latin American NICs: Brazil and Mexico

Most of the examples in the discussion of specific industries in Part II involved either Brazil or Mexico. A survey of Tables II-1 through III-5 indicates why this was the case. Brazil and Mexico dominate the industrial output of Latin America as well as its manufactured exports, accounting for roughly 60 per cent of Latin American totals in each category (see Table III-1). They hold an even more central position in the investment holdings of United States TNCs, accounting for two thirds of United States direct manufacturing investments in the region (see Table III-2). Any changes in United States industrial policy that affect trade or investment will have a significant impact on the development strategies of Brazil and Mexico. Even more clearly, policy responses on the part of Brazil and Mexico will have a major impact on United States economic relations with the region.

(i) Similarities - Trade and investment patterns in manufacturing

Only Brazil and Mexico among the nations of Latin America are among the top dozen developing country exporters of manufactured goods to the industrial market economies [UNCTAD, 1980]. The various panels of Table III-5 illustrate the role of Brazil and Mexico in a number of the more traditional strongholds of developing country exports. In each of the five product classes considered, Brazil and Mexico rank in the top ten developing country exporters and in each of them the United States provides the largest single market. In each case, the United States is more important as a market for Brazil and Mexico in combination than for developing country exporters overall, and in each case the combined Brazilian/Mexican share is larger for the United States market than it is for the markets of other industrialized market economies. While both these statements apply primarily to Mexico, they are also true for Brazil in three of the five product categories. Brazil and Mexico are important developing country exporters of manufactured goods for whom the United States market is particularly critical.

As Tables III-2 and III-3 indicate, Brazil and Mexico have a very special place in the strategies of United States TNCs. Between them they contain over US$ 10 billion of direct investment in manufacturing, making them in combination more important then any individual nation in the world except Canada and the United Kingdom. In terms of providing opportunities for the expansion of United States manufacturing investment, they have been more important than most industrialized countries during the last decade. In Mexico and Brazil, United States TNCs were able to insert themselves in manufacturing sectors growing at 6 per cent and 10 per cent per year respectively during the 1970s, whereas in the United Kingdom, Canada and the Federal Republic of Germany (the three largest individual sites of United States manufacturing investment) the rates of growth of the manufacturing sector were between 0.7 per cent and 3.3 per cent per year. The attractiveness of Brazil and Mexico as investment sites is also clear in relation to the rest of Latin America. The rate of expansion of United States investments in these two countries was more than double those of the other major Latin American countries.

Table III-1 Latin American Manufacturing and Exports by Country

Countries	Value-added in Manufacturing 1979 (in '75 $) (1)	Manufacturing as % GDP 1980 (2)	Av. Annual Growth of Manu. '70-'80 (3)	Exports as % GDP 1979 (4)	Exports to U.S 1977 as % Total Exports (5)	Manufacutured Exports as % Total Exports 1979 (6)	Value of manufactured Exports 1979 in millions $ (7)	Manufactured Exports to Industrialized Market Economies as % Total Exports 1979 (8)
Major NICs:								
Brazil	40,327	28*	10.3	9	18	39	5,876	49
Mexico	23,429	24	5.9	14	66	39	3,389	80
Southern Cone:								
Argentina	11,192	37*	1.0	13*	7	24	1,888	39
Chile	1,967	21	-0.5	21	12	20	759	32
Uruguay	1,008	25	4.1	9	14	52	375	56
Paraguay	354	17	7.9	10	14	11	34	36
Andean								
Venezuela	5,491	16	5.7	33	36	1	238	67
Colombia	3,217	22	6.3	17	32	22	715	35
Peru	3,830	27	3.2	24	30	11	205	42
Ecuador	765	8	9.8	24	36	3	39	23
Bolivia	395	14	6.0	17	37	3	23	80
Central America								
Panama	307	na.	0.8	48	45	10	26	15
Costa Rica	530	20	7.9	26	29	25	228	13
Guatemala	na.	na.	6.2	22	32	23	268	6
El Salvador	337	15	4.1	31	33	24	251	5
Honduras	226	17	5.4	37	49	10	60	30
Nicaragua	287	25	2.9	24	45	12	64	2
Caribbean								
Cuba	na.	na.	na.	na.	0	1	39	39
Dominican Rep.	886	15	4.1	17	74	26	194	95
Jamaica	388	15	-2.2	50	na.	52	422	74
Haiti	na.	na.	7.1	19	107	39	62	96
Trinidad & Tobago	na.	na.	na.	45	na.	6	157	91

NOTES: Exports in column (4) include travel, freight and insurance; exports in other columns refer to merchandise exports.
Data with asterisks are for 1 year earlier taken from World Bank (1981)
Data for countries with less than 1 million population (e.g. Guyana, Belize) is not presented in sources used.
n.a. = not available

SOURCES: World Bank, 1982: 112-115, 118-121, 126-127, 132-133. (Tables 2,3,5,6,9,12)
Wilkie & Haber, 1981:450 (Table 2727) for column 5

TABLE III-2. Growth of U.S. Manufacturing Investment in Latin America by Country 1970-1981

Country	1970 Total Manu.DFI	1970 Country as % of total	1981 Total Manu. DFI	1981 Country as % of Total	% Growth 1970-1981	Manu.DFI as % of Total U.S. DFI 1970	Manu.DFI as % of Total U.S. DFI 1981
Brazil	1,247	27%	5,420	34%	334%	68%	66%
Mexico	1,199	26%	5,140	33%	328%	67%	74%
Argentina	771	17%	1,570	10%	103%	60%	57%
Venezuela	462	10%	1,156	7%	150%	21%	53%
Colombia	235	5%	574	4%	144%	34%	49%
Chile	66	1%	112	1%	70%	9%	13%
Peru	92	2%	106	1%	15%	13%	5%
Other South America	358	8%	454	3%	169%	11%	45%
Caribbean			510	3%			6%
Central America	191	4%	720	5%	276%	10%	15%
TOTAL	4,621	100%	15,762	101%	241%	31%	41%

Source: U.S. Department of Commerce. 1972:30-31 (Table 7B)
U.S. Department of Commerce. 1982b:22 (Table 14)

TABLE III-3. Distribution of U.S. Manufacturing Investment in Latin America 1981
(in U.S. $ millions)

Country	Industry: Food $	Food %	Chemicals $	Chemicals %	Primary metals $	Primary metals %	Machinery $	Machinery %	Electrical & Electronic $	Electrical & Electronic %	Transport equip. $	Transport equip. %	Other $	Other %	TOTAL $	TOTAL %
Brazil	502	25	1060	29	468	31	904	35	394	35	590	34	1501	37	5,420	34
Mexico	436	21	1130	30	564	37	417	26	503	45	846	48	1242	31	5,140	33
Argentina	264	13	360	10	67	4	223	14	48	4	308	18	301	7	1,570	10
Venezuela	276	14	397	11	65	4	24	2	34	3	-50	-3	410	10	1,156	7
Colombia	89	4	181	5	22	1	10	1	48	4	19	1	204	5	574	4
Chile	17	1	28	1	19	1	1	0	4	0	na	na	na	na	112	1
Ecuador	27	1	15	0	na	na	0	0	na	na	4	0	36	1	107	1
Peru	-2	0	30	1	21	1	1	0	15	1	10	1	32	1	106	1
Other South America *	19	1	17	0	na	na	3	0	na	na	na	na	na	na	347	2
Panama	90	4	175	5	0	0	0	0	1	0	0	0	37	1	302	2
Other Central America	129	6	117	3	21	1	0	0	37	3	1	0	112	3	418	3
Caribbean**	185	9	208	6	7	0	0	0	24	2	0	0	86	2	510	3
Total Latin America	2032	99	3719	101	1521 (1254)	80***	1583	80	1130 (1108)	97	1747 (1728)	98	4030 (3961)	99	15,762	101

* includes Uruguay, Paraguay, Bolivia

** U.S. Dept. Commerce's category is labelled "Other Western Hemisphere", Caribbean countries not normally considered part of Latin America (e.g. Bahamas, Bermuda) are included.

*** U.S. Dept. of Commerce surpressed detail when it might reveal investments of individual firms. In this table surpression of detail results in only trivial loss of information except in the cell "Other South America-Primary Metals" which must contain between $242 and $267 worth of investment or 15-18 percent of the investment in this industry. Figures in parenthises at the bottom of each column are the total of the detail. Percentages may not add to 100 even when detail has not been surpressed due to rounding.

Source: U.S. Department of Commerce, 1982b:22 (Table 14).

Table III-4. Distribution of United States 806.3/817 Imports by Origin 1977-1980
(in U.S. $ millions)

Origin	1977 Total value	1977 Foreign Value-added	1977 F.V.A. as % of total	1980 Total Value	1980 Foreign Value-added	1980 F.V.A. as % of Total
All Areas	7,188	5,212	73%	13,999	10,257	74%
Developed Countries	3,880	3,490	90%	7,658	7,081	92%
Developing Countries	3,307	1,722	52%	6,339	3,176	50%
Latin America:	1,567	731	47%	2,957	1,439	49%
Mexico	1,156	523	45%	2,331	1,155	50%
Brazil	121	104	86%	111	95	86%
Colombia	15	6	40%	20	8	40%
Central America:	117	50	43%	174	66	38%
El Salvador	74	35	47%	89	38	43%
Costa Rica	26	9	35%	45	15	33%
Other*	17	6	35%	40	13	33%
Caribbean:	158	48	30%	321	115	36%
Haiti	84	23	27%	154	49	32%
Dominican Republic	46	14	30%	98	32	33%
Other**	28	11	39%	69	34	49%

Source: USITC, 1981a:B-3-B-6, B-11-B-12 (Tables 2 and 4).

* includes Nicaragua, Belize and Honduras
** includes Barbados, Jamaica, Guyana, Trinidad and Tobago, and French West Indies.

Table III-5: Developing Country Manufactured Exports to the U.S. and other Developed Market Economies: The Importance of Brazil and Mexico in Five Product Categories. (amounts in millions $ U.S.)

Exporter	Destination: U.S.	Other Industrialized Countries	All Industrialized Countries	U.S. as % of Developing Countries
A. Textiles:				
Brazil (6)	39	159	198	20%
Mexico (7)	60	53	113	53%
All Developing Countries	669	2422	3091	22%
Brazil & Mexico % of total of developing countries	15%	9%	10%	
B. Miscellaneous Light Manufactures:				
Brazil (6)	20	29	49	41%
Mexico	140	12	152	92%
All Developing Countries	1280	1129	2409	53%
Brazil & Mexico % of total of Developing Countries	13%	4%	8%	
C. Leather and Footwear:				
Brazil (2)	158	109	267	59%
Mexico (8)	43	5	48	90%
All Developing Countries	680	901	1581	43%
Brazil & Mexico % of total of Developing Countries	30%	13%	20%	
D. Food Products:				
Brazil (1)	280	303	583	46%
Mexico (7)	83	23	106	78%
All Developing Countries	737	1383	2140	35%
Brazil & Mexico % of total of Developing Countries	45%	23%	31%	
E. Wood Products and Furniture:				
Brazil (5)	63	77	140	43%
Mexico (10)	58	2	60	97%
All Developing Countries	535	1464	1999	27%
Brazil & Mexico % of total of Developing Countries	23%	5%	10%	

NOTES:

All Industrialized Countries = 21 developed market economy countries.

Product Categories are defined as follows:
Textiles = SITC 266,267 and 65
Miscellaneous Light Manufacturing = 83,862,863, and 89
Leather and footwear = 61,85
Food products = 012, 013, 032, 046, 047, 048, 052, 053, 055, 062, 071.3, 072.2, 072.3, 073, 091, 099.
Wood and furniture = 243, 244.2, 63,82

Numbers in parentheses after country names = rank among developing country exporters.

SOURCE: UNCTAD, 1980:32-33 (Tables 25-29).

Of the US$ 11 billion increase in United States manufacturing investments in Latin America between 1970 and 1981, US$ 8 billion were placed in Brazil and Mexcio.

The special place of Brazil and Mexico in the strategies of United States TNCs is also evident in the distribution of United States investments by industry (Table III-3). There are certain industries in which the necessities of a larger-scale market make it extremely difficult to embark on profitable investments in the smaller Latin American countries. In these industries, machinery and transport equipment being the prime examples, Brazil and Mexico contain over 80 per cent of United States investments in the region and, especially in the case of machinery, the smaller countries of the region contain virtually no investment. For an important segment of United States TNCs, then, opportunities for investment in Latin America have essentiallly referred to opportunities for investment in Brazil or Mexico.

(ii) Contrasts - Trade and investment patterns

While Brazil and Mexico share a single position in the region as far as their industrial primacy is concerned, their situations contrast sharply along a number of critical dimensions.

Three main factors stand out as differences between the trade of Mexico and Brazil. First, and most obvious, Mexico is much more dependent on the United States as a trading partner. The majority of Mexico's exports go to the United States whereas Brazil has a highly diversified set of trading partners and sends the majority of its manufactured exports to developing or centrally planned developed countries (see Table III-1). Second, as has already been pointed out, Mexico is closely linked to the internationalized system of production organized by United States TNCs. This is made clear in Table III-4 which summarizes 806.3/807 imports into the United States. Mexico is the largest single source of 806.3/807 imports, producing three times the quantity of the rest of Latin America combined. Brazil, on the other hand, is a minor source, one whose share of total 806.3/807 imports was falling in the late 1970s. (It is also worth noting that the structure

of Brazil's 806.3/807 exports is similar to that of developed country suppliers in terms of the high proportion of foreign value added that they contain, and quite distinct from the 806.3/807 exports of other Latin American countries, including Mexico in this respect). The third important point of contrast between the trade of Brazil and Mexico is that Brazil has steadily increased the share of manufactured and semi-manufactured products in its exports during the late 1970s, reaching 56 per cent for the two combined in 1980. During the same period Mexico's increased reliance on oil exports has meant a sharp decrease in total share of manufactured exports, thus reducing somewhat its reliance on United States markets for manufactured goods. It should be noted, however, that Mexico's burgeoning oil exports did not resolve the country's balance of trade even at the peak of the oil price boom in 1979 [ECLA, 1982:28-29; 119; 371]. Insofar as oil reserves provided a solution to Mexico's balance-of-payments problems, it was through their effect on the propensity of international finance institutions to provide the loan capital necessary to bridge the deficit in the current account. Thus, oil notwithstanding, manufactured exports remain critical to Mexico's industrial development.

Contrasts in investment patterns mirror the constrasts in trade patterns. TNC investment in Mexico comes primarily from the United States whereas foreign direct investment in Brazil is of diverse origins [see Newfarmer and Mueller, 1975; Gereffi and Evans, 1981; Wilkie and Haber, 1981:517]. The pattern of United States investment in the two countries reflects the greater importance of Mexico's trade links with the United States. The two industries in which Mexico has the largest share of United States investment (see Table III-3) - electrical and electronic equipment and transportation equipment - are both industries in which Mexico exports significant amounts of 806.3/807 goods (see Tables II-17 and -18 above). The industry in which Brazil has the largest share, machinery, is one whose development is linked to the changing structure of domestic production and to the development of export markets other than the United States. It is in industries in which United States TNCs are under-represented in Brazil (e.g. primary metals) that Brazil has expanded its exports to the United States most dramatically (refer to Table II-7). The involvement of United States

TNCs in Brazil is, in short, relatively more independent of Brazil's trade with the United States.

(iii) Potential effects of changes in United States policy on Brazil and Mexico

Both Brazil and Mexico are well positioned to take advantage of the export opportunities that would be opened up by an internationalist policy of accelerated structural adjustment. They would both face traumatic readjustment in the face of United States movement in the direction of structural retardation. Perhaps, even more important, the responses of Brazil and Mexico to future United States policy changes will vitally affect the prospects of United States TNCs.

Mexico is the more important candidate in Latin American for being drawn into a common development strategy based on an internationalist policy of accelerated structural adjustment. Conversely, it would be most severely affected by a United States industrial policy that emphasized insulation from the international economy as a means of retarding structural change. Current trends in oil prices in combination with the overwhelming size of the international debt amassed during the period of high oil prices make the prospect of change in United States policy even more threatening. The length of the common border between the two countries and the intensity of the interconnections between the two economies would make it extremely difficult for Mexico to respond with policies aimed at greater autarky. By the same token, however, the costs to the United States of trying to diminish significantly its economic openness with respect to Mexico would also be extremely high. Total United States trade with Mexico is exceeded only by trade with Japan [IMF, 1982:111-112]. The heavy involvement of United States banks in Mexico's debt complements the intimate connections that have already been described for the manufacturing sector. The close connections between the labour markets of the two countries create yet another kind of tie. In all, Mexico provides what may be the best illustration of the reasons why a policy of actively attempting to retard structural change will be opposed by powerful groups within the United States.

The past history of Brazil's policy toward the United States as well as the structure of economic relations between the two countries suggest that Brazil might well be somewhat wary of the opportunities offered by an internationalist stance on the part of the United States. Conversely, while the effects of closing off the United States market would create severe problems for Brazil they would be less fundamental than the problems created for Mexico. The greatest losers in Brazil, should the United States move in the direction of reduced openness, might well be United States TNCs and banks. United States TNCs already complain that they are by-passed by the Brazilian State in favour of European or Japanese firms when major economic packages are being negotiated [Business Latin America, 17 February 1982:49]. Such problems would clearly be exacerbated by negative United States policies. A policy of "de-linking" from the United States, while almost unthinkable for Mexico is highly improbable but at least thinkable for Brazil.

2. Countries of the Southern Cone: Argentina, Chile, Paraguay, Uruguay

The Southern Cone of South America has played only a minor role in the recent expansion of both manufactured exports from Latin America to the United States and United States manufacturing investments in Latin America. With the possible exception of Argentina, however, these countries are excluded by their small size and their past policies of economic openness from being able to consider the more autarkic strategies that exist at least as hypothetical possibilities for Brazil.

In comparison to the other countries of Latin America, the countries of the Southern Cone direct a surprisingly small amount of their export trade toward the United States (see Table III-1). Except for Argentina's export of manufactured products related to its agricultural strengths, food products and leather goods [UNCTAD, 1980:34-35], and the very recent expansion of manufactured exports from Uruguay (see Table III-1), the participation of the countries of the Southern Cone in the expansion of developing countries' manufactured exports has been relatively minor, especially in the light of the relatively high degree of development of the Argentine manufacturing sector and relatively high overall levels of development of both Chile and Uruguay. The lack of Southern Cone

participation in the growth of developing countries' manufactured exports is particularly evident in the almost complete absence of these countries from the roles of 806.3/807 exporters (see Table III-4). At the same time, however, the notable adherence of these countries, especially Chile, to free trade principles has meant that they still rely heavily on the continuation of a generally open trading system.

Since their own policies of international openness have not produced sufficient economic results in terms of domestic growth, any movement away from the liberal trade principles on the part of the United States would certainly strengthen the tentative moves currently being made by these countries in a more nationalist direction [Business Latin America, 21 July 1982:228; 28 July 1982:236; 11 August 1982:256]. Current attempts to diversify trading relations might also be reinforced. Such moves could in turn cost the United States some important contributors to the resolution of its own trade problems. The United States currently exports more than double the goods to Chile that it imports and ran a positive trade balance of almost a billion dollars with Argentina in 1981 [IMF, 1982:111].

The larger manufacturing economies of the Southern Cone (Argentina and Chile) experienced very sluggish growth during the 1970s (less than 1 per cent per year in combination - see Table III-1). United States TNC investment was accordingly very limited. United States manufacturing investment in the Southern Cone grew substantially more slowly during the 1970s than United States manufacturing investment in Latin America overall (Table III-2). The share of manufacturing investment in total United States investment in Argentina declined and the share of manufacturing in United States TNC Chilean investments remained very low. Overall, the Southern Cone does not seem to have played an important role in the efforts of United State TNCs to develop new internationalized systems of manufacturing production.

The Southern Cone seems unlikely to be either a major beneficiary of movement in the direction of increased international openness on the part of the United States or a major economic loser from policy movements in the opposite direction. Changes in United States policy in the direction

of retarding structural change would, however, have the effect of undercutting the governmental support of the current economic policies and might therefore have an indirect but substantial effect on the future policy orientations of these countries. Since their current policies are close to ideal from the United States point of view, such a change would probably be seen as a major political loss by the United States.

3. The Andean Countries: Bolivia, Colombia, Ecuador, Peru, Venezuela

Much of what has been said about the recent evolution of economic relations between the United States and the countries of the Southern Cone also applies to the Andean Countries, despite the fact that the approach of the Andean Pact to the international economy has been quite different from that of the Southern Cone.

With the exception of Colombia, these countries have made only very limited progress in moving towards increased reliance on manufactured exports. Venezuela continues to rely extensively on oil. Peru, Ecuador and Bolivia continue to depend primarily on mining and other extractive industries for their export earnings. Attempts to increase the proportion of manufactured exports, like the recent Peruvian programme of export incentives, have run up against strong resistance on the part of the United States. In the fall of 1982 the United States Department of Commerce instigated countervailing duty investigations against Peruvian textiles, alleging that the Peruvian incentive programme constituted a subsidy [Business Latin America, 17 November 1982:363-68].

There has been some growth of manufacturing investment in the area, concentrated primarily in Venezuela and Colombia. In Venezuela, the elimination of United States equity in the oil industry has led to a substantial shift in the direction of manufacturing. Thus, while overall United States investment in Venezuela fell by half a billion dollars between 1970 and 1981, manufacturing investment more than doubled, increasing the proportion of manufacturing investment to a level more comparable with Argentina and Brazil (see Table III-2). Colombia experienced a similar growth of manufacturing investment, and is the only

country in the area with measurable participation in 806.3/807 exports (see Table III-4). Peru, on the other hand, had the lowest manufacturing investment growth rate of any major country in Latin America and witnessed a decline in the already low proportion of manufacturing in total investment. Part of its difficulties in securing access for its manufactured exports lies in its exclusion, to a large extent, from United States TNC networks of international production.

For the Andean countries, again with the exception of Colombia, the primary effect of changes in United States policy in the direction of diminished openness would be to cut off potential for internationally-oriented strategies of manufacturing development rather than to disrupt established structures. Costs to United States TNCs would therefore be less in this area than in most others, though such a move would jeopardize substantial markets for United States exports in both Venezuela and Colombia. The distribution of potential opportunities based on a more internationalist policy is similar. It would provide some openings in low-wage, labour-intensive industries for countries like Peru which are struggling to increase their manufactured exports, but the base on which a more significant internationally-oriented manufacturing initiative might be built is still in the process of being established. Perhaps one of the most interesting questions to be raised with respect to future United States policy in the area is whether United States movements in the direction of retarding structural change might stimulate a resurgence of the more nationalist initiatives that characterized the early history of the Andean Pact [see Mytelka, 1979].

4. Central America and the Caribbean

The manufacturing sector in Central America and the Caribbean is the most export oriented of any area in the Latin American region. Likewise, it is an area closely tied to the United States in terms of both trade and investment. Thus, while the magnitudes of trade and investment involved in the area are small from the point of view of the United States, changes in United States policy would have major consequences for the pace and pattern of industrialization in the area.

As far as patterns of trade are concerned, the small countries of Central America and the Caribbean tend to be more heavily dependent on exports than the countries of South America, and to direct their exports more toward the United States. This is particularly true of the Caribbean states. The value of manufactured exports from these countries tends to be very large relative to the size of their indigenous manufacturing sectors. For example, El Salvador exported more manufactured goods than Peru in 1970 despite the fact that its manufacturing sector was less than one tenth as large (see Table III-1). More than anywhere else in Latin America, manufacturing for export dominates overall industrial development.

Current policy in the area suggests a movement toward an even heavier export-orientation in future industrial development. Emulation of the "Taiwan path", which is interpreted as involving successful industrialization based on labour-intensive, export-assembly operations, is becoming increasingly popular. Jamaica, for example, is hoping to triple the proportion of its manufacturing sector that is devoted to export-oriented activities by 1987 [Latin America Weekly Report, 2 April 1983:7]

The central role of United States TNCs in orienting manufacturing development toward export assembly operations is indicated by the disproportionate contribution of these two areas to 806.3/807 imports (see Table III-4). Central America and the Caribbean produced four and a half times the amount of 806.3/807 exports produced by all of South America, despite the fact that the extant manufacturing capacity in the area is probably only about 5 per cent of that of South America (see Table III-1). The growth of export-assembly operations has produced a relatively dynamic growth of United States manufacturing investment in the region. Manufacturing investments have grown more rapidly in Central America than in any other area of Latin America outside of Brazil and Mexico, and, while there is a lack of data for Caribbean investments for the early 1970s (see Table III-2), the same is probably true of the Caribbean.

Two important caveats regarding the assessment of the manufacturing development that has taken place in the area should be noted. First, export assembly operations represent by definition a very shallow kind of manufacturing development. The degree of its limitations is evident in the low proportion of local value added contained in the 806.3/807 exports from the area. While 806.3/807 imports from developed countries (and from Brazil) represent primarily value added in the exporting country, the larger share of value contained in these exports from most developing countries represents value created in the United States and assembled offshore. Central America and the Caribbean add even less value than most developing countries. The value of their manufactured exports is therefore overstated. More important, the problems that existing manufacturing operations would have in continuing to produce in the absence of inputs from the United States and markets in the United States are correspondingly greater. At the same time, it should be noted that despite the extreme dependence of manufacturing in the area on an internationalized system of production organized by United States TNCs, the cost to United States TNCs of not being able to continue operating in these areas cannot be compared to the costs of having operations in Brazil and Mexico disrupted. Total manufacturing investment in all the countries of Central America and the Caribbean combined is still less than one quarter of the manufacturing investment located in Brazil alone and total 806.3/807 exports form these areas are still less than one quarter of those from Mexico alone.

Simply put, a change in United States policy toward diminished openness would be devastating to the manufacturing developments that have taken place in the Caribbean to date. Since the assembly operations involved tend to be labour-intensive, their demise would have serious implications for labour absorption and therefore on future immigration from the region. The impact would be similar to that already discussed for Mexico, except that in the case of Mexico the scale and sophistication of the existing industrial establishment provides the potential possibility of a re-orientation toward a more autarkic kind of manufacturing development. For the countries of Central America and the Caribbean, the closing off of current manufacturing developments would

necessitate, essentially, a complete starting over in the sector. Conversely, the countries of these areas would be likely to seize strongly upon the opportunities created by a more internationist United States policy. Such a policy would shape their future industrial development much more thoroughly than it would be likely to shape the future evolution of manufacturing in South America or even in Mexico.

In the case of Central America and the Caribbean it is also worth commenting on the effects of continuing current policies, since the "Caribbean Basin Initiative" (CBI) represents the Reagan Administration's most important new policy as far as United States economic relations with Latin America are concerned. The CBI is particularly interesting because it represents an attempt to divorce the trade and foreign investment aspects of an "internationalist" policy from the internal structural adjustment aspects. An attempt at such a separation is possible only because the CBI is so restrictive, affecting only a small proportion of developing country exports to the United States. Even so, the industry with perhaps the greatest potential for job creation in the area, textiles, was excluded from the proposed Free Trade Area (FTA) because in the absence of any domestic programme of structural readjustment the negative impact on the United States textiles industry would have been unacceptable. As it stands, the projected expansion of exports from the proposed FTA is only between US$ 40 and US$ 80 million in the first year (between 0.4 per cent and 0.9 per cent of the area's 1980 exports to the United States). At least half of this increase is likely to represent exports taken away from other developing countries rather than an expansion of United States imports [Feinberg and Newfarmer, 1982:214]. The projected increase in exports may be contrasted with the estimated US$ 300 million that could be added to the area's exports if the United States rate of domestic growth were to move from 0 per cent to 3 per cent per year [Feinberg and Newfarmer, 1982:217]. Overall, the CBI demonstrates clearly why productivity-enhancing accelerated restructuring of the domestic economy must be the cornerstone of an internalionalist industrial policy.

B. PROJECTED EFFECTS OF POLICY ALTERNATIVES

In considering the implications of the four policy scenarios, it is important to reiterate the fact that, with the exception of current policy, each of them is an ideal type; that is, a hypothetical construct designed to illustrate policy tendencies. Actual future policy will be an eclectic, probably internally inconsistent, product of these tendencies. One of the values of setting out four hypothetical possibilities is that it clarifies certain probable constancies in United States industrial trends. There are certain policies which are relatively invariant across the four scenarios. Consequently, certain problems in future Latin American/United States economic relations can be predicted almost independently of the direction taken by the trend of industrial policy within the United States.

1. Continuation of present policies

Basically, the effects of a continuation of present trends are likely to be felt in low growth and shrinking employment opportunities in United States manufacturing combined with increasing difficulties for Latin American countries to resolve balance-of-payments bottlenecks by expanding manufactured exports.

Current policies hold no promise of recovery for the steel industry in the foreseeable future. Plant closures, permanent loss of employment, and gradual shrinkage of United States capacity are likely to continue despite negotiated export restraints, continued legal action against supposed subsidization of foreign producers and so on, while improved efficiency is a less likely outcome. While productivity should increase somewhat as a result of labour force reductions and the retirement of the most inefficient capacity, there is little prospect of any substantial renovation of existing capacity or the construction of more efficient new plants. There is no reason to believe that new capital will flow into the industry through private capital markets and what little cash flow the steel companies have is likely to be channeled toward diversification

not the renovation of steel plants. Metal fabricators who use steel will continue to face cost disadvantages relative to foreign competitors, and the depressed areas which depend on the industry will continue to require funds from federal and state governments in order to alleviate the social problems that have arisen from the deterioration of their industrial base.

In petrochemicals, gradual erosion of competitiveness due to rising costs for hydrocarbon inputs (energy and raw materials), falling rates of return in basic and intermediate petrochemicals and gradually diminishing contribution to United States exports are likely results of continuation of present policies. Assuming that diminished competitiveness is accompanied by increased ad hoc attempts at protection as it has been in other industries, the result could be the gradual erosion of the cost advantages that domestic users of United States petrochemicals have enjoyed in the past. (Textile producers using synthetic fibers would be a prime example.) Effects on employment should be negligible, both because the industry is so labour intensive and because technological change should continue in downstream specialty products, keeping the industry as a whole relatively dynamic.

In electronics, continued international strength in computers is not likely to be undermined by a continuation of present policies, but the Semi-conductor industry might well find itself in difficulty. The precarious financial situation of the industry is likely to persist, and if it does, United States firms may be forced to retreat in those markets in which Japanese competition is the strongest (e.g. 1CK and larger RAMs). They may also have to abandon the exploration of certain new products (as in the case of Texas Instruments and other United States firms giving up research on bubble memories - UNIDO, 1981a:153-154). Increased production by United States firms in Japan is also probable (e.g. Texas Instruments plans for the manufacture of 64K RAMs in Japan - UNIDO, 1981a:233). Thus, the United States could end up with deteriorating trade balances and low rates of employment growth in semi-conductors, despite the continued competitiveness of product lines, and continued reliance on the offshore assembly of components, further deterioration of trade balances and further shrinkage of employment

opportunities in the industry are the likely result of a continuation of current policies.

As for other industries, the effects of the continuation of current policies on those already troubled by import penetration, are likely to be similar to those already described for steel. In the auto industry, something equivalent to the voluntary restraint agreement in steel is likely to be negotiated with the Japanese, restricting their imports and shifting them more toward the upper end of the market. This will not, of course, allow United States firms to recover their pre-1973 momentum, since lack of demand rather than import penetration is the prime cause of their financial distress. United States companies may well, however, adjust and be able to operate in the black at lower levels of volume. The almost three hundred thousand auto workers currently out of work are unlikely to be recalled in this scenario, but the industry would survive with its corporate structure intact. This scenario is also consistent with continued, or increased, sourcing of parts from Latin America, but the market for these imports, like the markets for autos in general, would be relatively stagnant.

Low-wage, labour-intensive industries would continue to shrink as sources of employment and those workers who remain in them could be likely to experience falling real wages, following the path of the footwear industry. Precipitous declines may be smoothed by OMAs or other ad hoc quantitative protectionist devices, but current policies will not change the "sunset" status of these industries.

2. Active retardation of structural change

Since current policy contains significant elements aimed at retarding structural change, it is not difficult to extrapolate the probable direct effects of making these elements more prominent. What is much more difficult to project are the indirect and corollary effects of such a policy. For example, would a movement toward protectionism be coupled with policies aimed at restricting the flow of foreign direct investment and technology transfer? Such a coupling is logically plausible, but

politically improbable. Because of the difficulties of assuming corollary effects, the discussion here will focus on the direct effects.

A move to preserve the steel industry by curtailing imports would not revitalize it. Even if imports were reduced to zero there would still be excess capacity. Nor would such a move be likely to induce a significant renovation of the plant and equipment in the industry. While the cashflow situation of the firms would improve, the elimination of competition from imports would reduce price competition and therefore the pressure to make cost-reducing investments. Employment might improve somewhat in the industry, but the effects are likely to be greater for the level of wages than for the level of employment. Increases of wages in excess of increases in productivity, a real possibility in the absence of import competition, would contribute further to the industry's declining efficiency. The very limited nature of the positive effects on the industry itself would be counterbalanced by negative effects both for the United States and for Latin America.

The international competitiveness of United States metal fabricators would suffer from the diminished price competition entailed in protecting steel. For example, it is reported that the prices paid for steel by Japanese auto producers are 25 to 30 per cent below those paid by United States auto producers for comparable products [Magaziner and Reich, 1982:155]. The competitive disadvantage inherent in this differential policy would in all likelihood increase in the event of a more stringently protectionist policy. Since fabricated metal products (e.g. electrical and non-electrical machinery) are an important component of United States exports, protection of the steel industry might well have a negative overall effect on the United States balance of trade [cf. Crandall, 1981].

Curtailing steel imports would also eliminate an important potential avenue for expansion of Latin American manufactured exports. Brazil, the largest Latin American exporter, never accounted for more than 5 per cent of United States consumption, even in those products on which its exports were focused [USITC, 1982a: II-34; USITC, 1982a:A-56], but this share of

the market was sufficient to absorb a significant portion of Brazil's output in these products (see Table II-7 above). Currently, cutting off the possibility of exports to the United States would exacerbate the crisis in the Brazilian steel industry. In the longer run it would have the effect of eliminating the possible development of steel as an export industry in which Brazil (along with Mexico and Venezuela) may have a real comparative advantage.

Since petrochemicals, like steel, provides basic inputs for a broad set of downstream industries, the long-run effects of protecting petrochemicals are likely to be quite similar to those of protecting steel. If United States industry becomes less competitive in basic and intermediate products due to higher costs of hydrocarbon inputs, as seems likely, protecting it will lock downstream industries, some of which like textiles are quite vulnerable, into relying on high-cost inputs. Since the industry is so capital intensive, compensating positive effects on the level of employment or wages in the industry would be quite small. Finally, protection of basic and intermediate petrochemicals by the United States would undoubtedly provoke increased barriers against United States exports of plastics and other downstream products and therefore could have a negative overall effect on the United States trade balance.

Effects of protectionism in petrochemicals on Latin American exports would be quite small, at least until the 1990s. Mexico is the only Latin American country with serious possibilities of export and even if Mexican capacity grows at projected rates, output is not likely to outspace domestic needs during the 1980s. In the longer run, however, protectionism could rob Mexico of important export opportunities in an industry in which it clearly has a significant comparative advantage. Protection of petrochemical products would also have moderate effects on domestically-oriented industries like Brazil's. (Since technically given ratios among various by-products do not always conform to the structure of local demand, and since growth in capacity tends to be more 'lumpy' than growth in demand, exports can be important in allowing the most efficient use of capacity even in an industry constructed to satisfy local demand). Overall, losses to Latin America would be small in comparison to the effects on the large-scale, export-oriented projects

currently being constructed by United States TNCs in the Middle East.

In electronics a general movement toward protectionism is unlikely to have great effect in the computer industry, except insofar as it was associated with a general slackening of world trade. The United States computer industry is unlikely to need protection. Retaliatory tariffs are also less likely in this industry, given the costs in industrial efficiency a nation restricting computer imports would have to bear. In both semi-conductors and consumer electronics, however, generalized movement toward protection would seriously disrupt the strategies of United States TNCs.

Since 80 per cent of United States semi-conductor imports are 806.3/807 imports (see Table II-16), United States firms would be the main losers from any imposition of tariffs on semi-conductors. The Japanese, who account for the majority of non-806.3/807 imports, would be hurt to some degree but they would probably respond, as they did in consumer electronics, by setting up assembly operations (and perhaps even wafer fabrication) within the United States. United States producers of consumer electronics might gain from protection in certain product markets (e.g. video cassette recorders) where they have been virtually eliminated from the market, but their ability to profit from the overseas assembly of components would be eliminated.

The position of labour is quite different from that of TNCs. The possibilities for job creation through protecting the electronics industry might be considerable. The estimate that overseas employment in semi-conductors is 80 per cent of United States employment provides some idea of the number of jobs that would be involved in "bringing the industry back home". Between the offshore assembly of semi-conductors and the overseas assembly of consumer electronics components the number the number of jobs could total over 200,000*. This is not, of course,

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* This admittedly crude estimate is arrived at by combining the USITC [1982c:8] estimate of overseas semi-conductor employment (160,000) with Gray et al.'s figure [1982:156] on the number of United States jobs lost in consumer electronics between 1966 and 1978 (56,000). Flamm [1981:443a] offers a similar estimate (219,000) based directly on United States Department of Commerce figures for 1977.

the number of jobs that would be created in the United States even if all overseas production were moved back to the United States, since part of the production would be automated in the process of moving. Still, the number of jobs would be considerable and would be increased further if foreign producers responded to tariff barriers by setting up production facilities in the United States.

In Latin America, the largest effects of protectionism in electronics would be felt in Mexico. The consequences for Mexico's overall industrial development might not be great, given the rather marginal linkage effects connected to electronics, but it would result in a significant loss of jobs in the border areas. A quite possible effect might be to increase the flow of undocumented workers from Mexico into the United States as workers attempted to follow their jobs.

The full gamut of other industries, from cutlery to machine tools, in which import penetration has risen sharply in the last two decades (see Table I-4) would stand to benefit from a turn toward protectionism. While even a complete curtailment of imports in autos would not reproduce the industry's halcyon days, barriers to import competition would increase both domestic output and domestic prices, thus raising profit margins. In the longer run, investment by Japanese and European producers in United States facilities would almost certainly follow. This would probably not bring price levels back down to pre-protection levels, but it would contribute to job creation. Certain of the other industries involved, such as textiles, are already quite well protected and might in fact suffer from a general movement toward protectionism since the cost of their inputs would rise. In other industries, such as apparel the job-creation effects could be substantial.

On the whole, although the jobs created by a movement toward protection might be less desirable than the jobs lost in export-oriented industries, they would probably be more numerous. The movement toward protectionism and the general recession in international trade that would have to accompany it might result in an overall decline in economic

activity that destroyed a larger number of jobs than those protected. Nonetheless, it is not unreasonable to argue that the consequences of a movement toward protectionism would be to improve the bargaining position of labour in relation to management within the manufacturing sector even though it might have the effect of lowering the living standards of the working population overall.

3. Nationalist attempts at accelerated adjustment

It is more difficult to extrapolate the possible future effects of nationalist accelerated adjustment from observations of current policy. The task is made even more difficult by the fact that some proponents of "accelerated adjustment" seem to be advocating the accelerated modernization of basic industries like steel whereas others focus on transfer of resources to more promising sectors. Nonetheless, it can be assumed that nationalist accelerated adjustment would involve less protection for traditional sectors combined with more active export promotion and, perhaps, more substantial support for the expansion of direct foreign investment.

Steel is not a candidate for export promotion. Nonetheless, an approach to industrial policy which emphasizes competition with other national economies is unlikely to advocate shrinkage of the industry. Magaziner and Reich [1982:337-38, 351-52], for example, characterize steel as a "key linkage industry" in which individual economic actors tend to under-invest, implying that attempts to improve United States competitiveness should include some form of public support for the steel industry. If steel is seen as a "key linkage industry" that must be preserved at its present size, subsidy for new capitalization would have to be combined with continuation of current forms of ad hoc protectionism. In the case of steel then, the consequences for Latin America of a more nationalistic industrial policy aimed at enhancing international competitiveness would be basically the same as a continuation of current policies.

The more appropriate strategy for the long-run promotion of international competitiveness in petrochemicals is not easily chosen. On the one hand, since United States comparative advantage is likely to lie in downstream specialty chemicals, it would make sense to aim at lowering the cost of basic and intermediate inputs used in producing these chemicals. Such a strategy could imply switching eventually to imported basics and intermediates, which would open possibilities for developing countries with hydrocarbon reserves, like Mexico. On the other hand, a more stringent medium-term nationalist approach might well focus on trying to improve competitiveness in basics and intermediates themselves, hoping that process innovations could be devised that would overcome disadvantages in raw materials prices. Such an approach, combined with heightened criticism of Latin American attempts to reserve domestic markets in speciality chemicals for local producers, could make the nationalist approach less palatable than the current approach as far as Latin Americans are concerned.

Electronics offers the proponents of a more nationalist approach both the possibility of increased exports and the possibility of stimulating domestic production by encouraging process innovations that would make United States production more competitive vis-a-vis offshore assembly. On the export side, the main thrust as far as Latin American markets are concerned would be to try to counter attempts like the Brazilian one to construct integrated local industries. Special export financing for computers and electronic equipment would be a possibility. Technical assistance to Latin American governments and firms designed to accelerate their adoption of advanced data processing equipment would be another. A more sophisticated version of this export promotion policy would probably encourage United States TNCs to assemble United States components within Latin America so that some local value added would be associated with increased imports.

On the domestic side, three kinds of initiatives can be envisaged under a more active nationalist industrial policy. In semi-conductors, provision of loan capital at subsidized rates to enable firms to continue product innovation and modernization of production processes would be a

possibility. In computers, the prospect of continued United States dominance might be enhanced by subsidization of research with longer term payoffs and higher risks and perhaps through the enouragement of cooperative R and D. In consumer electronics a nationalist policy would use public funds to encourage more rapid entry into new product lines (e.g. video disk recorders, digital phonographs and radios, etc.). In both semi-conductors and consumer electronics, encouragement of the "automate but bring it back home" strategy would fit nicely with the nationalist approach. Unlike the protectionist strategy, however, an approach aimed at maximizing international competitiveness would have to take care not to undercut the competitiveness of United States firms by removing the possibility of a low labour-cost strategy involving offshore assembly before alternative production processes were equally competitive.

The short-term costs of a nationalist approach in electronics are not great as far as Latin America is concerned, but neither are the benefits. In the longer term, it would probably involve the loss of export-oriented assembly operations in semi-conductors and consumer electronics, but might in compensation encourage certain other kinds of assembly cooperation aimed at facilitating development of local markets for more sophisticated electronic equipment such as computers.

A brief overview of <u>other industries</u> would show that a more active nationalist approach might work to the benefit of Latin Americans as far as its effects in low-wage, labour-intensive industries like textiles and apparel are concerned, since, unlike an outright protectionist approach, it would involve positive inducements to shift capital and labour out of such industries. Reduction of protectionist barriers against traditional labour-intensive manufactured exports from Latin America would thereby become more feasible. Since auto, like steel, is considered too central an industry to be allowed to shrink significantly, it is likely to be targeted for support by a nationalist approach despite its relative uncompetitiveness. In addition, a nationalist approach would involve opposition to bargains between Latin American governments and United States TNCs that were viewed as subsidizing or compelling auto parts exports from Latin America into the United States market.

A nationalist approach would highlight a range of "hi-tech" industries viewed, like electronics, as having potential for eventual export growth, for serving as the basis for productivity-enhancing changes in production processes in other industries and for stimulating the growth of domestic markets. Robotics is one example. Fiber optics and bio-engineering are also commonly mentioned. But, even if such policies succeeded in accelerating developments in these industries, they would have little short- or medium-term effect on Latin American industrial development.

4. Accelerated adjustment with an international orientation

The results of an 'internationalist' approach to accelerated adjustment would in certain respects parallel those of a 'nationalist' approach. The internationalist version of accelerated adjustment, however, would involve less emphasis on export promotion and greater openness to imports in a variety of industries. Both of these differences are of critical importance to Latin American economies.

An internationalist programme of accelerated adjustment in the steel industry would begin with an explicit commitment to the idea that the industry should shrink, not drastically, but by at least 10-20 per cent of current capacity. Subsidies for capital formation in the steel industry would therefore not take the form of encouraging the construction of major new greenfield sites, rather they would be highly selective, aimed at specific areas where United States production has a reasonable chance of being competitive.

The major thrust of an internationalist stance in steel would be toward mitigating the negative consequences of structural change for labour. Policies in this area would have to speak both to the needs of workers leaving the industry and to the needs of those remaining in it. Policies for workers leaving the industry would involve active intervention in labour markets, perhaps something along the lines of Reich's [1982:29] "transitional vouchers" which would give employers in other industries tax credits for hiring former steelworkers. Those who

remained would have to be offered some incentive to increase productivity. Since their wages would need to be brought in line with those in other manufacturing industries, the incentives should take the form of structural changes in the internal organization of the industry, perhaps along the lines of the Youngstown proposal. Attention would have to be paid to the communities as well as individual workers since the social costs of the geographical mobility implied in the "transition voucher" ideas could be as great or greater than the individual benefits. Allocation of considerable resources would, in short, be required in order to mitigate the costs to labour. The costs might, however, not appear so high when considered net of costs currently required for welfare and other programmes to handle the social problems generated by the industry's natural decline.

The benefits of such a policy from the point of view of Latin America could be considerable, since the other side of the internationalist stance would be increased openness to imports. Brazil, eventually Mexico, and perhaps even Venezuela, would be in a position to expand steel exports to the United States. The extent to which these countries actually profit from increased openness would, of course, depend on their ability to compete with a range of industrialized and industrializing countries from Romania to the Republic of Korea. Shifting the focus of the concerns of Latin American steel producers from administratively imposed barriers to cost competition must, however, be considered a healthy change and at least some Latin American producers should be able to respond successfully to the challenge.

Immediate consequences for petrochemicals would be less dramatic than for steel, but long-run effects would be equally important. Some influx of public resources for the promotion of new product development and process innovation would be combined with an explicit commitment to the eventual shrinking of capacity in those product lines in which hydrocarbon inputs give oil-exporting countries a clear comparative advantage. Net effects on employment within the industry are not clear, but it is by no means obvious that they would be negative. In the long run, the markets for exports from Latin America opened up by this policy could be considerable, depending always on the evolution of the industry

in the Middle East. The consequent stimulation of the growth of petrochemical capacity in Latin America would in turn have a potential effect on possibilities for both United States capital goods exports and direct foreign investment, though these effects might not be realized without a complementary set of policies designed to speak to financial constraint (as for example in encouraging buy-back or counter-trade agreements) and to provide encouragement for United States TNCs to allow Latin American partners greater access to their technology.

As in petrochemicals, an internationalist programme of structural adjustment in electronics would share some of the features of a nationalist one, specifically in the urgent promotion of new product development in consumer electronics as well as in other branches of the industry and in some form of aid to capital formation in the semi-conductor industry. It would not, however, include the "automate but bring it back home" feature of the nationalist programme. To the contrary, the emphasis of an internationalist approach might be to encourage more import substitution by developing countries (as in facilitating local wafer fabrication) on the assumption that local production would stimulate demand for more sophisticated products more rapidly than it satisfied demand for routinized ones, thus increasing rather than reducing the market imports. Even more than in petrochemicals and steel the United States would also stand to gain from the capital goods market created by increased local Latin American electronics production in the semi-conductor and consumer electronics industries, since United States capital goods are likely to be more competitive in this industry. The same arguments would apply even more strongly to the computer industry. Facilitating local capabilities for production and assembly is likely to stimulate demand for components, more sophisticated computers, and capital goods and therefore create as much demand for imports as it eliminates.

In other industries, the effects of an internationalist stance in low-wage, labour-intensive industries like textiles and apparel, would be a more clear-cut version of what has already been described for the steel industry. For textiles, which have been relatively prosperous under protectionist policies, the effects would be particularly strongly felt.

But in both textiles and apparel the effects, especially on labour, would be very substantial. The shrinkage of capacity and employment might be considerably greater than in steel and the necessity of devoting resources to ensuring the re-employment of labour and trying to protect the integrity of communities would be correspondingly greater. There would, of course, be positive effects of a similar magnitude on the textile and apparel industries outside the United States. Latin America could be a beneficiary of the increased export opportunities, but might well find that Asian competitors both old (e.g. Taiwan Province of China, Hong Kong, Singapore, the Republic of Korea) and new (e.g. the People's Republic of China) ended up reaping most of the benefits.

The effects of an internationalist stance in auto are more ambiguous. Auto is an industry threatened by imports and in some respects would have to be treated like steel. Some shrinkage of domestic capacity might be implied. Explicit efforts to move workers out of the industry would unquestionably be necessary. At the same time, there is no clear evidence that existing United States auto capacity is inherently uncompetitive for technological reasons and the profitability problems of the industry are more closely linked to changes in demand than to import penetration. Furthermore, an internationalist stance might substantially enhance the competitiveness of auto companies in two respects. First, it would allow further development of internationalization of production along the lines already illustrated by the geographical division of labour in electronics. Second, it would increase price competition in steel and other industries that are important sources of inputs and thereby lower auto manufacturing costs. If in addition, internal re-organization of the process of production along the lines already suggested for steel were effective in providing incentive for increased productivity, accelerated adjustment might help put the industry on a more solid footing.

Regardless of its consequences for the auto industry in the United States an internationalist stance would clearly open up opportunities for the development of the industry in Latin America. Parts exports linked to the increased internationalization of the productive process are the

most probable kind of opportunity. Exports of some assembled vehicles might be a later possibility.

For the various high-technology industries already mentioned in the discussion of "nationalist" accelerated adjustment the effects of an internationalist strategy would be essentially similar, with one important difference. Since the internationalist strategy would imply much more extensive displacement of labour from declining sectors, there would be pressure to promote a broader range of new technologies, at least some of which would have to have potential for labour absorption.

C. POSSIBLE LATIN AMERICAN RESPONSES

Each of the scenarios for future United States policy creates certain pressures to which Latin American countries must respond, and leaves open certain opportunities. The shape of the Latin American response will depend on internal political developments and on the general state of the international economy as much as on the content of United States policy. But, the ability of United States policymakers to achieve their goals will be very much contingent on the kinds of response their policies invoke.

1. Responses to continuation of current policy

Continuation of current United States policy makes the continued reliance of Latin American countries on the expansion of manufactured exports increasingly problematic. Pressures toward policies designed to increase autarky which are already strong because of debt problems would be reinforced by a continuation of current United States industrial policy. This would entail a combination of lower growth rates, especially in new industries where imports of capital goods and intermediate products were unavailable locally. The market for United States exports would be correspondingly diminished. Increasing intransigence on the part of Latin American governments in negotiations over their international financial obligations might also be expected.

At the same time, strategies for reducing foreign currency obligations might be coupled with attempts to use ties with TNCs to gain greater access to United States markets. Bargains like those already made with auto companies in Brazil and Mexico [cf. Gereffi and Evans, 1981; Bennett and Sharpe, 1981] provide some relief from "neo-protectionism". Their growth in electronics exports is another example of how closer ties with TNCs can provide export avenues. Thus, continuation of current United States policies, could strengthen ties with United States direct investors, while creating problems for United States exporters.

The real question is whether the continuation of current United States policy might encourage Latin American governments in the direction of more radical industrial development policies. Two factors might increase the likelihood of such a possibility. First, the pressures created by international debt payments are extreme and will get worse unless substantial flexibility continues to be shown by international finance institutions. The crushing burdens of trying to operate under the constraints imposed by debt service problems may be sufficient in themselves to prompt more drastic actions. In addition, the strategy of trying to use TNC linkages as a way of garnering the necessary foreign exchange income has only limited promise. As has already been suggested, there is no assurance that shifts in TNC strategies will not lead to their abandonment of support for Latin American manufactured exports. The "TNC-linkage" strategy also contradicts to some degree the focus on import reduction because of TNCs' imports of components or materials and the repatriation of their profits, thus, in certain cases contributing to a drain in the capital account.

More radical policies cannot be dismissed as a possible response to the continuation of current United States policies. Their likelihood should, however, increase substantially in the event that the United States moves in the direction of active retardation of structural change. The potential configuration of more radical policies is therefore more appropriately discussed under this heading of possible responses.

2. Responses to policies retarding structural change

Much more radically than would a continuation of current policies, a movement toward generalized protectionism would cut off Latin American development strategies built around the expansion of manufactured exports. Perhaps the most important difference between the consequences of ad hoc "neo-protectionism" and the consequences of more stringent protectionism is that the latter would remove the option of working with TNC allies to maintain access to the United States market. Since offers of future contributions to balance-of-payments problems have been a central element of recent Third World bargains with TNCs, it is not unreasonable to predict that substantial changes in relations between TNCs and Latin American governments would follow from a movement of United States policy in the direction of protectionism. This should be true regardless of whether United States industrial policy continues to include the active support of DFI that characterizes current policy.

The low-growth, import-reducing strategies that would follow from a continuation of current United States policies, would follow even more strongly from a policy of generalized protectionism. But, the chances of achieving equilibrium at a reduced level of imports and exports would be less, and Latin American regimes might then re-examine their international financial commitments. Current financial problems have already brought to the fore discussions of solutions that would have been considered very radical in the past. Assessment of a trend toward protectionism on the part of the United States is likely to be taken very seriously and may give further incentive to more serious discussion of such alternatives as moratoriums on foreign debt.

More stringent protectionism would directly force a response from Latin Americans in the area of trade policy. The probable responses would have a highly negative effect on United States capital goods exports. During the 1970s, Latin American capital goods markets represented one of the most promising avenues of export expansion for United States exporters. The United States Department of Commerce

[1979:3] estimated the 1982 market for imported capital goods in Brazil alone at over US$ 5 billion. The growth rates in the demand for capital goods imports were estimated to be considerably higher then the overall growth rates for the Brazilian economy, despite the fact that Brazil was making significant strides in local production of capital goods. Growth rates for capital goods imports between 1977 and 1982 were estimated at 12.7 per cent per annum in electronics, 14.9 per cent in telecommunications, 11.5 per cent in metallurgy (including steel) and 17.5 per cent in petroleum refining, petrochemicals and chemicals [United States Department of Commerce, 1979:3, Table 1]. To be sure, these estimates were made prior to the severe industrial recession of 1981-82, but they still provide a sense of the potential dynamism of this market under conditions of reasonable worldwide growth rates.

Another indication of the potential importance of developing country capital goods markets for industrialized country exports is provided by UNIDO [1983:195-196] estimates of the gains in employment that would accrue to the developed countries as a result of increases in developing country steel capacity. According to the UNIDO estimates, even if developing country capital goods imports were completely balanced by deliveries of steel from developing countries, the gain in jobs in the developed countries would be 330,000 work years in the low growth scenario. Furthermore, the jobs created by capital goods orders are likely to be more desirable in terms of level of pay and skills than the jobs lost in iron and steel productions, amplifying the benefits for the developed countries.

Overall, United States exports to the region would be hurt in a number of different ways by the policies of a protectionist strategy. Lower rates of industrial growth would cut the market. The increased difficulty of relying on alliances with TNCs would increase the stringency with which TNC imports of capital goods were controlled, thus diminishing the advantages which normally accrue to United States suppliers by virtue of the magnitude of United States investments in the region. The search for other markets in which to place exports would lead to pressures from new customers to purchase capital goods from them. The recent push by the Soviet Union to increase Argentine

purchases of Soviet capital goods can be taken as an illustration of a process which would become more widespread in the event of increased United States protectionism.

As in the case of financial negotiations, the trade problems generated by increased protectionism would stimulate the exploration of less orthodox policies. For example, the difficulty of expanding manufactured exports would increase the attractiveness of securing capital imports by means of "buy-back" or compensation arrangements. "Counter-trading" or barter arrangements are another possibility. Mexico is apparently already studying the possibility of trying to explore such arrangements [Latin American Weekly Report, 3 November 1983:7]. Since the United States has "the smallest percentage of counter-trade arrangements" among the developed countries [United States Department of Labor, 1980:V-45], it would be hardest hit by such a shift in policy.

Changes in policies toward United States TNCs in Latin America are harder to predict than changes in trade policy, but there is a strong likelihood that United States TNCs would be negatively affected. Since a more stringent protectionism would diminish the advantages of TNCs as channels of access to United States markets, some of the current incentives for Latin Americans to attract increased DFI would be negated. It is also entirely possible that protectionism would be accompanied by more stringent restrictions on the transfer of technology overseas and with the removal of some of the current government supports for foreign investments. The inclusion of anti-foreign investment components in a protectionist programme would further strengthen tendencies toward more nationalist policies toward investment in Latin America. Nationalist policies aimed at increased autarky would seem both more legitimate and more necessary. For example, Brazil's policy toward the computer industry which currently appears a dubious strategy would be more easily justified. Likewise, Mexico's choice to minimize TNC involvement in the development of its petrochemical industry, which now appears to have important costs in terms of its effects on potential access to the United States, would be vindicated.

Overall, the expected response to United States policies retarding

structural adjustment would be one of reciprocation. Just as United States policies would imply increased autarky and insulation from the international market, so would Latin American policies. In the Latin American case, however, the insulation would have to include capital and financial markets as well as commodity markets. In addition, the Latin American response might well combine a "de-linking" from the United States with attempts to construct more diverse trade ties with new trading partners.

3. Responses to nationalist accelerated adjustment

Since the major opportunities for Latin American manufacturers that would be opened by a shift from current policies to one of nationalist accelerated adjustment would be in labour-intensive, low-technology exports into the United States market, the most important policy choice presented to Latin American governments is how much they wish to orient their manufacturing development to take advantage of this kind of opportunity. On the one hand, such exports are likely to be labour absorbing as well as useful in alleviating foreign exchange problems. On the other hand, for countries with ambitions of up-grading their local industrial establishments, the options of concentrating on low-productivity, labour-intensive goods may not be very attractive. Nationalist accelerated adjustment is therefore likely to gain a positive response from smaller poorer countries, like those of Central America and the Caribbean, than from larger more industrialized countries like Brazil and Mexico.

The second policy question that nationalist accelerated adjustment would present to Latin Americans is whether they would be willing to accept the probable quid pro quo that would be demanded in return for less protection against labour-intensive industries within the United States, that is greater openness to United States exports, especially "hi-tech" exports. Again, this is a condition that may be less onerous to smaller, less developed countries with no immediate aspirations to build local hi-tech industries than to larger richer ones.

A good example of the kind of conflicts that would be exacerbated

rather than alleviated under the nationalist accelerated adjustment strategy is the recent dispute over imports of Brazilian aircraft into the United States [see Washington Report on the Hemisphere, 21 September 1982]. Fairchild Industries requested a 44 per cent duty be imposed on all imports of the Brazilian Bandeirante light transport aircraft on the basis of alleged export subsidies. Part of the reason for the United States industry's challenge to Brazilian imports was the fact that Brazil, in its attempts to build up what can legitimately be called an 'infant industry', was protecting its domestic market against imports of United States aircraft.

Since the aircraft industry is a prime example of a sector that would be promoted under nationalist accelerated adjustment, it is likely that adoption of such a policy would intensify United States actions in such cases. Likewise, attempts like Brazil's to build up an independent local computer industry would be anathema. Insofar as accelerated adjustment served to increase the rate of industrial growth in the United States, countries like Brazil and Mexico would benefit substantially. If positive adjustment policies included ceasing to protect basic industries like steel and petrochemicals they would benefit even more. Because the nature of the quid pro quo would be more onerous for them, however, they might well reject the opportunities for export expansion restricted to more backward sectors and strike out in a more nationalist direction instead. Only the smaller less developed countries could be counted on to respond reciprocally.

On the investment side, nationalist accelerated adjustment would certainly mean more active promotion of foreign investment insofar as it was seen as a vehicle to building export markets. It could, however, easily be coupled with restrictions on technology transfer as well as stiffer opposition to "performance requirements". Both of these features would increase disagreements between Latin American governments and United States TNCs. Since the generally increased openness associated with accelerated adjustment should make it easier to export back to the United States independently of TNC channels, the overall result of an accelerated adjustment strategy might be more demanding policies toward

United States manufacturing investment in countries like Brazil and Mexico.

In the case of accelerated adjustment much more than in the case of structural retardation, Latin American responses are likely to be differentiated by country. Even more importantly, the countries which are most important to United States exporters and United States TNCs, namely, Brazil and Mexico, are likely to respond negatively.

4. Responses to 'internationalist' accelerated adjustment

The primary effect of a more internationalist stance on the part of the United States would be to breathe new life into possibilities for export-oriented industrialization. Balance-of-payments constraints would seem less intractable, the possibilities for expansion of the industrial base would appear brighter. Latin America would be less limited to the low-growth, autarky-oriented strategies that would become virtually the only option if the United States undertook serious efforts to retard structural change. Nonetheless, certain problems would remain even in this, the most favourable scenario from a Latin American point of view. Depending on the salience of these problems, Latin American responses might range from a straightforward complementary openness to more nationalist responses similar to those which might be expected under other scenarios.

The straightforward complementary response, obviously the one to be hoped for by the United States, would be to aim toward fuller integration into theinternationalized productive system organized by United States TNCs. Such a strategy would by no means eliminate opportunities for the expansion of local capital. To the contrary, some of the most important export opportunities opened up by an internationalist approach would be well suited to exploitation by local Latin American capital (i.e. traditional low-wage, labour-intensive industries such as footwear and apparel). But, it would mean that Latin American regimes would accept import substituting industrialization under the aegis of TNCs in new industries (i.e. electronics) and would also accept continued reliance on imports in more sophisticated branches of industries like petrochemicals

and electronics. Finally, it would also require accepting the developments of extensive industrial capacity that is incomplete, capable of producing final products only when used in combination with capacity located in the United States that fills in other links in the productive process (as currently in the semi-conductor industry). The industrialization implied by a straightforward complementary response would, in short, be subject to many of the criticisms that were directed against Latin American industrialization in the 1960s and 1970s.

The complementary response might also find itself undercut by international competition. Openness to the understandable aspirations of developing countries does not imply special access for Latin American exports. Just as current restrictions hit most directly at Asian exports, so increased openness might rebound primarily to the benefit of Asian NICs. Should Latin American countries find that the principal effect of United States openness was to increase the market share of textiles from the People's Republic of China, steel from the Republic of Korea and petrochemicals from the Middle East, they would be unlikely to respond simply by increasing their openness to United States exports of goods and capital.

Given the criticisms that would be raised against a straightforward complementary response and the possibility of it being undercut by international competition, a slightly more nationalist response might emerge. Such a response would place more emphasis on manufactured exports that were both non-traditional and produced by nationally-controlled firms. Brazil's current aircraft exports and Mexico's potential petrochemical exports are both examples. This 'semi-nationalist' approach, trying to take advantage of export opportunities without accepting a definition of comparative advantage defined primarily in terms of low-labour costs, would test the commitment of the United States to an internationalist policy.

An uncomplementary response on the part of Latin American regimes, while unlikely, is also worth noting. Latin Americans might respond to an internationalist United States policy with a nationalist orientation similar to that expected in the event of United States policies focused

on retarding adjustment. Since an internationalist policy on the part of the United States would expand the possibilities for collaboration between United States TNCs, Latin American States and Latin American industrialists, it would substantially lower the probability of such a response. Perhaps even more crucial, however, is the fact that a nationalist response from Latin America would not be as devastating to an internationalist United States industrial policy as might be assumed. Since an internationalist policy has been defined here as focusing primarily on shifting internal resources into more rewarding areas, and only secondarily on trade and balance-of-payments questions, it would not necessarily be undermined by a nationalist response from Latin American regimes. As long as other industrialized countries responded in a more or less complementary way, a negative response from Latin Americans could be weathered. One of the advantages of an internationalist posture on the part of the United States is that it would allow Latin American regimes more options. It would not have the effect of compelling Latin America to adopt a particular set of policies as would a policy of retarding structural change.

Part IV: CONCLUSION: EXPECTED OUTCOMES AND THE INTERNATIONALIST ALTERNATIVE

Despite some welcome current signs of recovery in the United States and the pressing immediate problems of debt servicing for Latin America, the problems of industrial development in both the United States and Latin America remain fundamental. Even if the United States economy grows at 4 to 5 per cent annually over the next couple of years, as some are predicting, and even if Latin America manages to reschedule and renegotiate its debt, the solutions to long-run economic problems will still depend on developments in the manufacturing sector.

What does the material that has been drawn together here imply about the future resolution of these problems? The implications of the report may be considered in two ways. First, it is possible to set out with relative confidence some expected outcomes. These are obviously ceteris paribus expectations which discount the possibility that current tensions in both Latin America and the United States will result in major political changes which might dramatically affect policy. They must also discount the very real possibility that failure to resolve existing economic difficulties (primarily the debt question) might result in serious disruption of the international economy. Nonetheless, leaving these possibilities for dramatic disjunctures aside, some relatively robust predictions regarding probable outcomes can be made.

The second section of the conclusion will be devoted to pulling together previous discussions of internationalist accelerated adjustment. Both the factors that make it a desirable solution from the point of view of the United States and the obstacles to its adoption will be re-elaborated. Finally, its advantages and disadvantages from a Latin American point of view will be summarized.

A. EXPECTED OUTCOMES

Certain trends in the evolution of the industries considered seem relatively robust under a variety of assumptions and, while the analysis

has not delved into corporate strategies, certain parameters of corporate strategies also seem relatively predictable. Not only is the continuation of current trends a reasonable prediction but a number of aspects of United States policies, particularly those relating to investment, may be relatively similar even under a variety of policy changes.

The consequences for Latin America must depend on Latin American responses, which in turn depend on domestic and political trends whose analysis lies well beyond the scope of this project. The prediction of continuity remains the safest option, although the tensions which might produce discontinuity are greater for most Latin American countries than for the United States.

1. Expected industrial developments and corporate strategies

Perhaps the most important conclusion to be emphasized with regard to industrial developments is that no plausible technological or purely economic process can be expected to alleviate either the problems of the United States economy or current conflicts with Latin America. This was evident in each of the three industry studies. In the distressed steel industry, it is difficult to envisage a programme of investment or modernization that would reverse job loss or easily restore United States competitiveness. In basic petrochemicals, shifting comparative advantages will give certain developing country producers increasing cost advantages relative to United States domestic producers. Even in electronics, continued intense competition with the Japanese, low profits (except for the leaders in the computer industry) and rapidly rising capital investment requirements for those who wish to remain in the competition are the expected future.

If growth prospects for United States domestic manufacturing are far from certain, prospects for the manufacturing workforce are even less so. The three industry case studies served to reinforce the conclusions of Part I (see Table I-1) regarding negative employment trends in the manufacturing sector. The negative prospects in declining sectors like steel do not need reiteration. Even more promising sectors like petrochemicals and electronics offer little in the way of increased

employment opportunities. While some segments of the petrochemical industry appear likely to expand (speciality and downstream chemicals), they are too capital intensive to offer strong prospects of employment growth. While the electronics industry will almost certainly expand, the trajectory of its expansion within the United States appears in an ever more capital-intensive direction. United States domestic labour does not appear likely to be the beneficiary of any future geographical shifts in the international division of labour in electronics. Any positive effects of "bringing assembly back home" are likely to be offset by labour-displacing automation of the operations that are brought back. Nor were any strongly compensating tendencies noted in industries other than those outside of the three primary case studies. Overall then, the material covered here suggests further shrinking of employment opportunities in United States domestic manufacturing. The probability of a deteriorating employment situation for United States manufacturing labour must in turn be taken into account in projecting political trends with regard to industrial policy.

Since negative trends in the United States position in international trade in manufactures are based on fundamental shifts in the relative position of the United States with regard to capital and skilled labour, they can be extrapolated with some confidence into the future. Nothing in the industry case studies spoke against this general finding. Even in the electronics industry, where relative United States dominance in combination with the very rapid growth of the industry might argue for an increasing positive contribution to United States trade balances, it was clear that the United States would be hard pressed to defend its position against the growing technological strength of the Japanese industry (see, for example, the above discussion of "super-computers" in Part II).

The austerity programme and stringent import cutbacks imposed on Latin American countries by debt service and balance-of-payments problems are likely to contribute to the negative factors affecting United States manufactured exports. As was pointed out in Part I (Table I-5) Latin America was an increasingly important market for United States manufactured goods during the 1970s and could have been even more important had the United States captured a full share of the dynamically

expanding market for capital goods that Latin America offered. With basic industries (e.g. steel and auto) in the major Latin American countries facing severe overcapacity there is little possibility that United States exports to Latin America will be able to grow at the same rate in the 1980s.

The evidence on patterns of international investment by United States firms that has been considered here suggests that past trends toward increasingly internationalized manufacturing production will continue or accelerate in the future. The electronics industry, the most rapidly growing of the industries considered, is also characterized by the most thoroughly developed international division of labour. The declining industry considered, steel, was also the industry with the smallest amount of international investment. Thus, future sectoral shifts should enhance the current internationalized character of the manufacturing sector.

Two features of the corporate strategies involved in this increasingly internationalized structure of manufacturing production should be noted. First, there is the growing importance of cross-investments among the developed countries. This can be seen particularly clearly in the electronics industry which has been characterized in recent years by purchases of smaller United States firms by Europeans, by increasing direct investments in the United States by Japanese firms, and by the beginnings of direct investment by United States firms in Japan. This is likely to be reflected in an even more thorough severing of the policy preferences of TNCs from the "nationalist" interests of labour and domestically-oriented capital.

The second feature of corporate investment strategy which stands out clearly is the extreme mobility of capital among the Third World locations. This was indicated in general terms in Part I where the virtual evaporation of flows of direct investment to Latin America in the last year (1982) in response to the political and economic uncertainties facing the region was noted. Finally, the shift of investments in

semi-conductor assembly from Mexico to the smaller, less developed countries of the Caribbean, provided an illustration of the problematic nature of a strategy of relying on mobile transnational investments in labour-intensive assembly oprations as a means of jobs and export creation.

These examples suggest that Latin America cannot expect corporate investment strategies to result in the same dynamic growth of direct investment in manufacturing that occurred in the 1960s and 1970s (see Table III-2). This is especially true of the major NICs (Brazil and Mexico) who were primary recipients of United States DFI in the last two decades. These countries are likely to find themselves competing increasingly for TNC investments with other developing countries, both within Latin America and outside it, which offer lower wages and less propensity to make nationalist demands on would-be investors.

2. Expected United States industrial policy

The political robustness of current United States industrial policy has been evident throughout the discussion and should be reiterated once more here. First, it is possible that the strength of new constituencies in favour of protectionist solutions could modify the specific configurations of current policy. Other sectors may be added to the claimants for insulation against the rigors of international competition but they would be confronted by the Government policy firmly founded on entrepreneurial decision-making and market forces and no major shift of general policies can be observed at present.

The pursuance of a policy to promote structural change more systematically and at the sector-specific level is not likely to come about in the near future. Some ad hoc measures in support of "sunrise" sectors or research and development in general can be expected but these are unlikely to change significantly either the allocation of domestic resources or the pace of United States technological progress in specific industrial subsectors. Hence, industrial policy per se is not likely to be the impetus to a more rapid "churning" of the productive structure of the manufacturing sector.

In the near future, Latin Americans can expect little change in those aspects of United States industrial policy that affect DFI. Current support for TNC investments is likely to be continued as will opposition to "performance requirements" imposed by Latin American governments. In the long term, of course, it is likely to be increasingly obvious to decision-makers in both the United States and Latin America that co-operative relations in the fields of industry, technology and trade will necessitate more systematic and specific policy initiatives within the internationalist policy framework. This would, inter alia, include co-operative efforts on such issues as support for technology transfers, "de-packaging" and greater transfer of know-how within direct investments, and increased employment generation.

3. Expected consequences for Latin America

The major consequences of expected trends in both industrial developments and United States policy as far as Latin America is concerned may be the undermining of what has been the dominant industrialization strategy of the last decade - the expansion of manufactured exports. Several factors could combine to make the expansion of manufactured exports more difficult.

The failure of the United States to stimulate higher rates of overall growth and more rapid movements of resources into new sectors would in itself dampen the potential market. The expected persistence of the pressure to insulate important sectors from imports (e.g. steel) would further restrict the available United States market.

Problems of increased competition will exacerbate the problem of inadequate growth of the United States market. The recent rapid growth of export-oriented United States DFI in East Asia means that whatever special access Latin America might have had to the United States market on the basis of TNC channels will become increasingly shared by East Asian countries in the future. Malaysia's takeover of Mexico's position as the most important source of United States 806.3/807 semi conductor

imports is a prime example. For Brazil and Mexico (especially Mexico), the problem of competition from other regions will be exacerbated by the problem of competition from within the region as more countries in the Caribbean and Central America try to replicate labour-intensive, export-oriented industrialization. Such negative prognostications with regard to the growth of manufactured exports to the United States market must, of course, be extremely discouraging as far as Latin Americans are concerned, since an extrapolation of past trends in the growth of manufactured exports has been counted on to provide eventual relief from the extreme economic pressures created by current debt problems.

Expected consequences for Latin America with regard to DFI must also be considered negative. Increasing interest in other regions as sites for export-oriented investments, combined with diminished attractiveness of major Latin American countries as sites of investments oriented toward the domestic market due to the recessionary policies which these countries have been forced by their financial difficulties to pursue, suggest that inflows of TNC investments cannot be counted on to provide levels of either foreign exchange or productive capital comparable to those offered in the past. The evidence also suggests a future context in which TNCs may be able to become more exigent in their bargaining, especially with the major Latin American NICs.

4. Expected Latin American responses

In order to talk of "expected" Latin American responses the possibility of dramatic political and economic changes must be left aside. Instead, for the purposes of this discussion, it must be assumed that Latin American countries will struggle to resolve the problems that the context just outlined presents to them roughly within the policy parameters that currently prevail. Within these terms, the expected response for Latin Americans must involve increased efforts to continue to penetrate the United States market. This is likely to involve the further development of Latin America's own industrial policies along the lines of "nationalist accelerated adjustment", that is export promotion, government support of capital willing to move into areas that look promising to generate increased exports, and some diminished protection

for sectors which are not competitive internationally - both as a demonstration of good faith to trading partners and as means of preventing the inefficient use of resources in those industries.

The harder choices will involve dealings with TNCs, responses to the likely United States demands for relaxing "performance requirements", and responses to the very probable United States demands for increased openness to United States exports in more technogically-advanced sectors (e.g. computers). If the expectation that TNCs are likely to become more exigent in their bargaining is correct, then Latin American countries may well be asked to compromise local control and linkages with the local industrial structure in return for TNC promises of increased exports. Some concessions in this area would seem predictable. United States influence to open local markets in technologically more advanced industries will be harder to accede to, not just because they go against nationalist aspirations to upgrade the technological level of local manufacturing, but also because they run directly counter to the more immediate need to pare down imports.

Assuming that both kinds of concessions can be negotiated successfully, the short-term response to be expected of most Latin American governments will be in the direction of increased involvement in the international division of manufacturing labour as defined by TNCs, including both increased reliance on TNC-aided exports and increased openness to goods exported by TNCs from the United States. Obviously, a strong differentiation among the Latin American countries is to be expected in this regard. The smaller countries of Central America and the Caribbean that are the targets of the "Caribbean Basin Initiative" are particularly likely to be drawn into TNC-organized manufacturing trade. Brazil and Mexico (particularly Brazil) are likely to resist concessions more strongly.

Since the evidence does not suggest that initial attempts to negotiate an expansion of manufactured exports are likely to have the same success as past attempts, expectations of the Latin American response must include an eventual reassessment of this strategy and a consideration of more radical alternatives. These would include

strategies for increased autarky, i.e. strategies that would involve shifting consumption patterns in a direction more consistent with increased domestic manufacturing capabilities as well as trying to develop the productive apparatus in a way that would allow increased autarky. They would also include more intense exploration of alternative avenues for export expansion such as South-South trade, trade with the centrally-planned developed countries, counter-trade, etc.

To go beyond saying that such alternatives would be explored more intensely would be to depart from the heading of "expected responses", but it does seem safe to say that there would be a differentiation between the larger, more industrialized countries and the smaller countries in the degree to which these alternatives could be seriously explored. Just as the smaller countries of Central America and the Caribbean are likely to be more strongly pulled to expand their dependence on export-oriented manufacturing controlled by TNCs in the short run, so they are likely to be less able to explore alternatives in the longer run. For the larger more industrialized countries, unorthodox alternatives are likely to appear increasingly attractive.

B. POSSIBILITIES AND POTENTIAL OF AN 'INTERNATIONALIST' ALTERNATIVE

Since expected outcomes leave a great deal to be desired, we turn once more to the possibility of a United States policy of internationalist accelerated adjustment, in order to close with a realistic assessment of the prospects and problems contained in this alternative. Several points need to be made here. First, it needs to be reiterated that the internationalist alternative should not be viewed as an "altruistic" choice on the part of the United States. The benefits to the United States are at least as great as those which might accrue to Latin America. Second, the obstacles to the adoption of such a policy should be spelled out for a final time, including some that have been insufficiently elaborated in previous discussions. Third, and most important, it must be emphasized once again that the adoption of an internationalist policy by the United States is not a "solution" to problems of the development of manufacturing in

Latin America, but simply the provision of an opening which allows Latin Americans to select their own industrial policies from a wider range of options.

1. Complementaries in United States and Latin American manufacturing interests

One of the strongest arguments for the adoption of an internationalist stance is the striking parallel between the negative effects of the protectionist alternative in Latin America and in the United States. It might have been expected that, since a closing-off of the United States economy would serve to protect substantial domestic interests, such a policy might be ambiguous in terms of its consequences for the United States while unambiguously negative in its consequences for Latin America. Even an unsystematic sampling of the areas in which United States economic interests would be negatively affected by the movement toward protectionism suggests, however, that the damage would be very considerable. At the same time, there also seems to be a relatively high degree of complementarity between the sectors that would be targeted for growth under a programme of accelerated structural adjustment and those in which expansion of Latin American exports would be likely under a policy of increased openness.

Most Latin American manufactured exports can be broadly divided into three categories: low-wage, labour-intensive goods; goods whose competitiveness is based ultimately on natural resource endowments; and goods exported through channels provided by United States TNCs. The three categories are not mutually exclusive, a given product might fit into all three at once, but jointly they cover most Latin American manufactured exports. The critical point is that none of these three categories of exports should be threatening to industries whose expansion would be targeted by a United States policy of accelerated structural adjustment.

Moving labour and capital out of low-wage, labour-intensive industries should be a prime objective of a policy of accelerated

adjustment. Taking advantage of the lower costs for industrial inputs like steel and basic petrochemicals, made possible by the quality and magnitude of Latin American iron and hydrocarbon reserves, should also be an objective of a United States policy of structural adjustment. The economic characteristics of goods channeled through United States TNCs, like semi-conductors and auto parts, are less clearly defined, but these goods are also, almost by definition, not threatening to the interests of the most powerful United States corporate actors. With a few exceptions (e.g. Brazilian aircraft exports) the set of manufacturing industries that might be threatened by Latin American manufactured exports hardly overlaps with the set that would be promoted by a policy of accelerated structural adjustment. In this sense, increased Latin American exports are compatible with the development of a more productive, more dynamic United States manufacturing sector.

2. Obstacles to the adoption of an internationalist policy

Arguments for the compatibility of expanded Latin American manufactured exports and the promotion of progressive changes in the United States manufacturing sector when combined with the arguments for the severe losses to the most powerful United States economic actors that might result from a policy of reduced openness might seem to suggest the likelihood of an internationalist policy of structural adjustment being adopted. Several crucial factors intervene to decrease this possiblity. First, an internationalist policy could not simply be directed at Latin America, and its implications for economic relations with other areas, most importantly Japan and the Federal Republic of Germany, are quite different than its implications toward Latin America. Equally important, however, is the fact that the discussion of costs and benefits so far has emphasized very heavily the costs and benefits to United States-based transnational capital. The calculus for labour is quite different.

There are, in addition, two other very real problems. One is the limitated influence of government policymaking on corporate decision making. A second, closely related, issue which has not been discussed

is the question of the problems entailed in the bureaucratic and political implementation of a policy of internationalist accelerated structural readjustment, even if such a policy were accepted in principle by both labour and capital.

While the benefits for labour of insulation from the international economy should not be overstated, there are real returns to manufacturing workers: The preservation of a certain number of high-wage jobs in industries like auto and steel, the preservation of even larger numbers of low-wage, labour-intensive jobs, and, perhaps most important, limiting the options for the geographical reorganization of production open to capital and thereby improving the bargaining position of manufacturing workers in general. Conversely, the benefits of growth in "sunrise" sectors are by no means assured from labour's point of view. The "hi-tech" industries usually discussed as candidates for promotion are either capital- or knowledge-intensive, unlikely to absorb large numbers of workers displaced from traditional manufacturing jobs, especially in the absence of intensive re-training efforts. As long as there is the possibility that policies of openness and subsidies for capital in leading sectors might be de-coupled from the extensive compensatory programmes for labour, it is understandable that labour might prefer the minimal but predictable gains to be had from protectionism.

Corporations resist sharing the power to decide how capital should be allocated. Therefore, even if it appeared plausible that public control would be in effect some form of collective control by the corporate establishment itself and even if control were proposed in the interest of improving overall returns to capital there would still be strong resistance from at least a portion of the business and commercial sectors. Since openness and accelerated structural adjustment might undercut the profitability of a certain portion of capital and since the boundaries of this portion would not necessarily be defined in advance, a rather large segment of capital might be ranged against steps toward an internationalist approach, regardless of the policy's potential objective benefits.

Implementation of a policy of accelerated structural adjustment would

require substantial bureaucratic expertise and technical knowledge. This requisite might prove problematic initially because of the limited experience of the United States in such intervention. In the absence of the initial capacity for effective administration, an internationalist policy might encounter additional problems in building political support on the basis of initial achievements.

3. Implications of an internationalist policy for Latin America

Maintaining rates of growth in Latin American manufacturing sectors in the 1980s comparable to those experienced in the 1960s and 1970s will be difficult even if the United States were to adopt an internationalist posture. But, without such a posture attainment of such rates of growth may prove impossible. Latin American manufacturing sectors, especially the largest and most dynamic of them (Brazil and Mexico) are already too reliant on imported inputs and therefore too dependent on manufactured exports to be able to shift in the direction of greater autarky without experiencing a period of lower growth. Problems might be mitigated by increased reliance on South-South linkages, economic ties with the centrally-planned developed countries or new relations with other OECD countries, but it is unlikely that any of these other markets would offer opportunities equivalent to those which would be lost in the United States market.

An internationalist policy would almost assuredly result in higher rates of growth for Latin American manufacturing sectors. It would also allow more rapid structural transformation of Latin American manufacturing sectors insofar as transformation depends on imported inputs of capital goods, intermediate products or technology. An internationalist policy contains, nonetheless, certain potential pitfalls from the point of view of Latin American manufacturing development.

(i) Internationalism and dependency

Inextricably linked to the positive consequences of an internationalist policy for rates of growth is the tendency of such a policy to reinforce certain characteristics of past industrial

development that have been associated with "dependence". More specifically, an internationalist policy on the part of the United States would strengthen the hand of United States TNCs both in the United States and in Latin America. In the United States, TNCs by virtue of their role in "leading sectors" would be prime beneficiaries of increased subsidies for capital formation in these sectors, support for research and development, etc. At the same time, United States TNCs would be better able to offer Latin American countries access to inter-firm trade involving the United States market. Increased United States government support (e.g. in terms of financing) for TNC exports of both goods and capital to Latin America would also be part of an internationalist policy.

Reserving local markets for local producers and avoiding exclusive reliance on export-led industrialization would become harder for Latin American governments, partly because of the strain at the State-to-State level toward complementarity of economic policies and ever more importantly because the strengthening of the position of TNCs and their local allies would have an impact on the process of policy formation in Latin America. Internationalist United States policies would not simply allow more rapid growth, they would also influence the direction of that growth.

(ii) The advantages of internationalism

Even for Latin Americans who would consider the danger of dependency most seriously and discount the advantages of growth in itself most heavily, an internationalist policy on the part of the United States would appear preferable to the other policy options for two reasons. First, effective acceleration of structural change in the United States would mean more rapid rates of industrial growth in the United States itself and, because of the large weight of the United States in the world economy, in other markets as well. The effectiveness of United States industrial policy towards the end is important to Latin America for global macroeconomic reasons quite independently of the consequence of this policy for the relative ease of access of Latin American exports.

The second advantage of an internationalist policy has already been

discussed but is worth underscoring. In sharp contrast to policies aimed at retarding structural change, an internationalist United States policy allows options in the Latin American response. It may create a strong bias toward a Latin American response which produces industrial development along lines favourable to United States TNCs but it does not determine such a response. It eliminates no options. The degree of tolerance associated with the policy will be enhanced insofar as it is successful in increasing the relative productivity of United States manufacturing and shifting workers and capital out of low-return sectors. The more effectively United States international problems are dealt with the less the United States will see favourable actions on part of other nations as the requisites of its own well being.

An internationalist United States policy will not resolve Latin America's problems of diverging income distribution and inadequate job creation. It is unlikely to resolve chronic balance-of-payments problems, despite its positive effects on export possibilities. It will not even assure more rapid rates of industrial growth, although it may facilitate them. In the area of industrial policy as in other policy areas, the United States is not a source of fundamental solutions to Latin American problems. Certain policies, however, make the United States less a source of the problems themselves, and an internationalist policy of accelerated structural readjustment would seem to be one of these.

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